The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1753.—Vol. XXXIX. LONDON, SATURDAY, MARCH 27, 1869. (WITH SUPPLEMENT) {STAMPED .. SIXPENCE, UNSTAMPED..FIVEPENCE

MR. JAMES CROFTS, STOCK AND SHAREBROKER,
No. 1, FINCH LANE, CORNHILL.
(Established 1842.)

Mr. CROFTS transacts business in the way of PURCHASE or SALE of every description of stocks, but particularly BRITISH MINES, at net prices. All orders meet with the utmost punctuality, and advice given as to the nature and eligibility of INVESTMENTS when required.

The continued rise in tin is creating an immense demand for shares in good tin mines. The advance of the last three weeks is £17 a ton, and it is still expected to advance. At the GREAT ROYALTON TIN MINE (Roche, Cornwall), in 4096 shares, 4 tons of tin will be raised per month, at a total cost of £30 per ton. Black tin is now upwards of £80, which will give a profit of £50 on every ton raised. The shares at present are 10s., but they will shortly rise to at least double or treble this price. The mine is situated at the head of the celebrated Goss Moors, from which millions worth of tin has been raised. Capt. Parkyn, the agent, writes—"The more I look into this valuable property the better I am pleased with it, and a great deal more than 4 tons of tin a month will be raised in a short time—when the shaft is down. The fact is, these lodes are the best work for tin I ever saw in all my experience, and cannot fail in yielding immense returns and profits. We have five lodes in the sett. The new lode, or what I call the great north lode, which I discovered since I saw you, is 6 feet wide, containing splendid rich tin. It is the best property I ever saw."

Capt. Parkyn's full report will be found in its place in this day's Journal.

Note.—By a printer's error, the price of Great Royalton shares was last week stated at 19s. instead of 10s.

MR. JOHN BUMPUS, 44, THREADNEEDLE STREET, has FOR SALE the following shares, free of commission :—

40 Anglo-Brazilian, 9s.	10 East Lovell, £9¼.	10 North Levant, £11¼.
20 Brynpostig, 33s.	25 E. Carn Brea, 5s. 9d.	50 Prince of Wales, 21s 9
Bedford United.	50 Frontino, 14s. 6d.	Port Phillip.
20 Bryn Gwiog, 6s.	10 Frank Mills, £33/4.	20 Pestarena, 25s.
20 Chiverton, £3 18s. 9d.	100 Gen. Brazilian, 5s 3d	70 Royalton, 28s. 6d.
25 Chiv. Moor, £3 17s 6d	(prem.)	50 Sao Vicente, 3s. pm.
50 Chontales, £1 7s. 6d.	15 Great Laxey, £19½.	20 South Darren, 35s.
70 Drake Walls, 20s. 6d.	20 Gt. No. Laxey, 30s 6d	100 Taquaril, 12s. 3d.
30 Don Pedro, £3 18s. 9d	10 Great Vor, £15½.	1 W. Wh. Seton, £203.
(prem.)	10 Marke Valley, £8 16 3	50 W. Drake Walls, 5s 9d
15 E. Grenville, £6 1s 3d	25 No. Treskerby, 17s.	5 W. Rose Down, £15.
20 East Caradon, £8 1 3	20 New Lovell, £2¾.	3 W. Chiverton, £62⅜.

MR. WILLIAM WARD,
STOCK AND SHAREDEALER,
No. 29, THREADNEEDLE STREET, LONDON, E.C.

MR. THOMAS SPARGO, STOCK AND SHAREDEALER,
224 & 225, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

JOHN RISLEY, (SWORN) STOCK AND SHAREBROKER, 48, THREADNEEDLE STREET, LONDON, E.C.
Bankers: London and Westminster, Lothbury.

MR. S. GOMPERS, JUN., STOCK AND SHAREDEALER,
3, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

MR. THOMAS THOMPSON, MINING OFFICES,
12, OLD JEWRY CHAMBERS, LONDON, E.C.

MR. WILLIAM SEWARD, STOCK AND MINING SHARE BROKER, 19, THROGMORTON STREET, LONDON, E.C.
Every description of shares BOUGHT and SOLD at the best market prices.

MR. EDWARD BREWIS, STOCK AND SHAREDEALER,
No. 34, OLD BROAD STREET, LONDON, E.C., has BUSINESS, for cash or account, in all the various Mining Securities at best market prices.
SPECIAL BUSINESS to buyers' or sellers' advantage in Chontales, Prince of Wales, West Godolphin, Don Pedro, Anglo-Brazilian, Royalton, Lucy Phillips, and Taquaril. Bankers: The Alliance Bank, London, E.C.

MR. JAMES HUME, STOCK AND SHAREDEALER,
74, OLD BROAD STREET, LONDON, E.C.

MR. J. H. COCK, STOCK AND MINING SHAREDEALER,
74, OLD BROAD STREET, LONDON, E.C.
Fifteen years' experience in Cornwall and London.
SPECIAL BUSINESS in Botallack, Boscean, South Condurrow, North Treskerby, Margaret, Rosewall Hill, North Levant, and New Lovell.
J. H. C. should be consulted on any of the above mines at once.

MR. T. ROSEWARNE, 81, OLD BROAD STREET,
LONDON, E.C.
T. R. has BUSINESS in the following mines, at close market prices:—

Buller.	Gawton.	Tincroft.
Chiverton.	Mineral Bottom.	West Chiverton.
Devon Consols.	Marke Valley.	West Drake Walls.
East Bassett.	Prince of Wales.	West Seton.
East Caradon.	Stray Park.	Wheal Seton.

WHEAL BULLER shares have risen 100 per cent. this week; and, should the lode be cut good at the junction in Hocking's shaft, shares will see a high figure. These shares have been as high as £1100, and are now about £15 to £20, and only in 512 shares—a fine spec.

I still recommend Bedford Consols, at 11s. to 13s.; Bedford United, 40s. to 42s. 6d.; and East Caradon, £7¾ to £8¼.

I can advise the purchase of several mines which are safe for a great rise during the next nine months, and not high-priced shares; the chances are that for £10 investors may realise £100; as, if the machinery on the mines were sold to-morrow, it is worth nearly the money the shares are now selling at. I shall be glad to inform any parties who may call at my office from the hours of 10 to 4 the mines I have selected and their chances of success, as metals are likely to rise higher.

T. R. should be consulted immediately respecting Wheal Grenville, East Grenville, Chontales, and Don Pedro.

Money advanced to any extent on good mining shares.
Office hours Ten to Four. Bankers: Bank of England.

MR. E. J. BARTLETT, STOCK AND SHAREDEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C., has SPECIAL BUSINESS in West Godolphin, Summer Hill, North Pool, South Condurrow, South Merilyn, New Lovell, Great South Chiverton, North Levant, Bryn Gwiog, East Rosewarne, East Lovell, Minera Boundary, Spearne Moor, East Carn Brea, North Treskerby, Wheal Agar, Caldbeck Fells, and Great North Laxey.
SOUTH MERLLYN.—See report published this day in these columns.
BUYER of Spearn Moor, West Godolphin, and Great South Chiverton.
Holders of Stock difficult of sale in the open market may find purchasers on application to the above.

MR. C. A. POWELL, BRITISH AND FOREIGN STOCK AND SHAREDEALER, No. 1, PINNER'S COURT, OLD BROAD STREET, LONDON, E.C.
Business transacted in every description of negociable securities at market prices.
SPECIAL BUSINESS in Frontino, Chontales, Don Pedro, St. John del Rey, Pestarena, General Brazilian, Taquaril, Wheal Uny, Penhalls, Prince of Wales, Brynpostig, Mid-Wales, and North Treskerby.
WANTED an offer for 50 St. Just Amalgamated.
Business transacted at net prices. References exchanged.
Bankers: City Bank, Finch-lane.

MR. WILLIAM MARLBOROUGH, 1, GREAT ST. HELEN'S, BISHOPSGATE STREET, LONDON, E.C. (Established 14 years), has FOR SALE the FOLLOWING SHARES, at net prices :—

50 Anglo-Brazilian, 7s 9d	5 East Lovell, £9½.	50 South Merilyn, 20s.
10 Brynpostig, 33s.	50 Frontino, 13s. 3d.	100 Santa Clara, 15s.
1 Cwm Erfin, £12¼.	25 Gunnis Lake (Clitter)	3 South Frances, £16.
2 Cwm Darren, £32½.	31s.	1 St. Ives Consols, £20.
30 Caldbeck Fells, 15s.	5 Great Vor, £15 7s. 6d.	20 Taquaril, 3s. 9d. pm.
1 Carn Brea, £19⅞.	25 Gt. So. Tolgus, 20s 9d	5 Trumpet Con., £19⅛.
50 Chontales, 28s.	5 Marke Valley, £8 16 3	50 Tamar Valley, 13s 9d
20 Chiverton, £3 16s.	20 Mineral Bottom, £3⅞	10 West Basset, £1 16s 3
1 Devon Consols, £296.	5 No. Levant, £11 3s 9d	20 West Godolphin. 30s.
10 Don Pedro, £3 18 9 pm	50 No. Treskerby, 16s 9d	1 West Chiverton, £52¼
30 Drake Walls, 20s. 6d.	30 North Crofty, 21s. 3d.	1 West Seton, £203.
5 East Basset, £6½.	50 Prince of Wales, 21s	5 Wheal Buller, £13¼.
10 East Caradon, £8.	50 Port Phillip, £1⅝.	20 Wh. Grenville, 49s 3d
10 E. Grenville, £6 1s 9	25 Rossa Grande, 8s 3 pm	20 Wheal Uny, £3 16s 9d
	20 So. Condurrow, 24s 6d	

MR. GEORGE BUDGE, STOCK AND SHAREDEALER,
No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 20 years).
SPECIAL BUSINESS as a BUYER or SELLER of Tin Valley shares.

CORNISH AND FOREIGN MINES—
TO SHAREHOLDERS AND OTHERS.
PETER WATSON'S "WEEKLY MINING CIRCULAR AND SHARE LIST—SYNOPSIS OF CORNISH AND DEVON MINES." Thursday, March 25, No. 525, Vol. XL., price 6d. each copy, forwarded on application, contains information on the following mines :—

Van.	West Caradon.	Great Wheal Vor.
Great Western.	Chiverton.	Don Pedro.
		St. John del Rey.

Particulars respecting the Tin Standard, Tin Mines, and Tin Mining in Cornwall; and Reports of the General Meetings of Shareholders of Chiverton and Great Wheal Vor.

INVESTMENT OR SPECULATION.—A SELECTED LIST OF RAILWAYS, BANKS, MINES, COLONIAL SECURITIES, FOREIGN GOVERNMENT BONDS, &c., forwarded to *bona fide* investors on application, in addition to the high rate of interest many of the above are paying, there is now every probability of a great rise in market value.
PETER WATSON, STOCK AND SHAREDEALER,
79, OLD BROAD STREET, LONDON
(three doors only from Hercules-passage, entrance to the Stock Exchange).
Twenty-four years' experience.
(Two in Cornwall and Twenty-two in London.)
Bankers: The Alliance Bank, and the Union Bank of London.
References given and required (when necessary) in all the principal towns of the United Kingdom.

THE LONDON DAILY RECORD—STOCK AND SHARE LIST—STOCK EXCHANGE SECURITIES. Published every evening at 5 o'clock. It contains the latest prices of railways, banks, mines, foreign stocks and bonds, financial, insurance, and miscellaneous shares, remarks on the daily rise and fall in prices, with advice as to purchase and sales. Annual subscription, £1 1s.; by post, £2 5s.; monthly subscription—by post, 4s.; single copy, 1d.; by post, 2d.
PETER WATSON, Stock and Sharedealer, 79, Old Broad-street, London.

MR. EDWARD COOKE,
STOCK AND MINING SHAREDEALER, 76, OLD BROAD STREET (and Mining Exchange), LONDON, E.C.
AUSTRALIAN GOLD MINING COMPANY (Limited).—The advices received this week are extremely favourable, as will, no doubt, be seen in this day's Journal. There are 20,000 shares, of £2 10s. each, of which £1 7s. 6d. is called up. Some are fully paid-up, and entitled to dividends on the full amount. I confidently recommend these shares as a good investment, and I have special facilities for dealing in them at close market prices.
Shares in all the dividend and best progressive British mines also dealt in.
References given.
Price-list sent free on application.
Bankers: Alliance Bank.

MR. W. H. CUELL,
No. 42, CORNHILL, LONDON, E.C.
SPECIAL BUSINESS in Stray Park and North Roskear.

MR. HENRY MANSELL, 44, THREADNEEDLE STREET, LONDON.
Mr. H. M. can recommend three mines for an immediate advance in price.
Thirteen Years' Experience.
Bankers: London Joint-Stock Bank.
References exchanged.

MR. J. B. REYNOLDS, STOCK AND SHAREDEALER, ETHELBURGA HOUSE, BISHOPSGATE STREET WITHIN, E.C.
Established Eleven Years.
Bankers: City Bank, London, E.C.

MR. JOHN MOSS, STOCK AND SHAREDEALER,
ST. MICHAEL'S CHAMBERS, 42, CORNHILL, E.C.
Business as BUYER or SELLER in Chontales, Don Pedro, General Brazilian, and Taquaril Gold shares.
Bankers: City Bank, Finch-lane, E.C.

MATTHEW GREENE, STOCK AND SHAREDEALER,
14, PINNER'S HALL, OLD BROAD STREET, LONDON, E.C.,
BUYS and SELLS Consols, Railway and Mining Shares at the closest market prices. Daily Price Lists on application.
HORRABRIDGE CONSOLS.—Mr. GREENE recommends immediate applications for shares in this highly-promising tin mine. A limited number of shares can be secured on application to Mr. GREENE.
VAN MINE AND DISTRICT.—M. G. is in a position to give reliable information, having conducted for years past mining operations in this rich lead-bearing county.
WHEAL ARGENT SILVER AND COPPER MINE, in 6400 shares.—M. G. has FOR SALE a limited number of shares at 10s. per share. This mine has made a profit of 50 per cent. on the last eight months' working, and during the last month has wonderfully improved. Capt. Gifford, the manager of Prince of Wales, in his report of the latter mine (see *Mining Journal* of the 13th inst., page 186) says—"I have, in company with my son, been over the south part of your sett on the silver lode, from which at the neighbouring mine, South Prince of Wales (Wheal Argent), was raised and sold during the last three months £400 worth of silver, at a cost not exceeding £60. An early application should be made, as this is the first and only opportunity the public will have of securing an interest in this fine property.

MR. J. R. PIKE has FOR SALE the undermentioned SHARES at the following net prices :—

4 Carn Brea, £20 10s.	15 North Crofty, £1 1s.	50 Drake Walls, £1 0s 9d
25 Chiverton, £3 19s.	20 New Lovell, £2 13s 9d	25 North Treskerby, 17s.
30 Chiv. Moor, £3 7s 6d	50 Pr. of Wales, £1 1s 9d	50 W. Drake Walls, 7s 6d
10 Cook's Kitchen, £15⅜	25 So. Condurrow, £1 5s.	20 Hingston Down, 4s 9d
50 East Grenville, £5 18 9	10 Tincroft, £18 13s. 9d.	100 Chontales, £1 7s. 6d.
20 E. Carn Brea, 7s. 3d.	5 St. John del Rey, £17⅞	140 Redmoor, 4s. 9d.
15 East Caradon, £7 18 9	4 West Frances, £51.	50 Wheal Crebor, 10s. 3d
10 East Lovell, £9 3s. 9d.	30 Wheal Uny, £3 16s 9d	20 Frank Mills, £3 16s 3
20 East Russell, 5s.	105 West Kitty, 4s. 6d.	50 Tamar Valley.
25 Mineral Bottom, £3⅞	25 Wh. Grenville, £2 10s	50 Budnick Consols, £1.

Parties may avail themselves of the above medium for the disposal of shares gratuitously unless sales are effected, when a commission of 1 per cent. will be charged.
All shares for insertion should reach Mr. PIKE's office on or before Friday.
Mr. PIKE has shares for sale in two tin mines that are already self-supporting, are free of liabilities, and will, no doubt, become good paying properties before many months. Full particulars may be had on application.
Established in Cornwall and London 20 years.
3, Crown Chambers, Threadneedle-street, London, E.C.

Established Twelve Years.—Twenty-four Years' Experience.
MR. F. W. MANSELL, 44, THREADNEEDLE STREET, LONDON.
Shares may be bought for future payment of Mr. MANSELL. Every facility afforded.
Mr. MANSELL can recommend six mines which cannot fail to advance cent. per cent. in the course of the next six months. Early application should be made.
The PURCHASE and SALE of Stock Exchange Securities and Mining Shares negociated upon close terms. References exchanged.
Bankers: London Joint Stock Bank.

INVESTMENT, LOAN, AND BANK AGENCY.
Established 1839.
Every information afforded to Capitalists, Trustees, and others who seek Investments of a strictly eligible and safe character.
Investments may be effected in Foreign Stocks, Colonial Bonds, Railway, Mine, and other Shares, subject to quarterly, half-yearly, or annual payments, upon advantageous terms.
LOANS granted, for one year or any shorter period, on Stocks and Shares having a market value.
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GOLD AND SILVER MINING SHARES.—RICHARD TAYLOR AND COMPANY are DEALERS in the FOLLOWING SHARES at close market prices, free of commission, either for cash or time on—

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ANGLO-BRAZILIAN.	GENERAL BRAZILIAN.	SAO VICENTE.
CHONTALES.	PESTARENA.	ST. JOHN DEL REY.
DON PEDRO.	PORT PHILLIP.	AND TAQUARIL.

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MR. T. P. THOMAS, MINING AGENT AND SHAREDEALER, 77, OLD BROAD STREET, LONDON.
Lead mining in the Counties of Cardigan and Montgomery has lately been very successful, and likely to continue so.
T. P. THOMAS, having a thorough knowledge of these districts, is at all times prepared to make SELECTIONS for investors.
WEST CHIVERTON, WHEAL CHIVERTON, MINERAL BOTTOM, and other Mines in the Chiverton District.—Investors and speculators can have reliable information as to the present position and future prospects of the above-named mines on application to T. P. THOMAS.

MR. CHARLES THOMAS,
MINING AGENT, GENERAL SHAREDEALER, AND AUCTIONEER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. CHARLES THOMAS congratulates his FRIENDS and the PUBLIC who FOLLOWED his ADVICE and PURCHASED in TIN MINES. His predictions respecting the advance in the price of that metal have been fully borne out. There are a few promising mines that have not participated in the general rise, the shares in which should be immediately secured.
C. T. will be happy to advise respecting the purchase or sale of mining and all other negociable securities. Practical experience is the best safeguard against injudicious investments.

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A PRACTICAL EXPOSITION OF THE
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(Late of Kennall Gunpowder Company)
GUNPOWDER MERCHANT,
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*** Sent free on application.
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48, THREADNEEDLE STREET, LONDON, E.C.
Daily Price List on application post free. References exchanged.

INTENDING INVESTORS.—The "FINANCIAL GAZETTE," published by Mr. Y. CHRISTIAN, should be consulted with a VIEW to the SAFE EMPLOYMENT of CAPITAL. It contains Original Articles, a Review of the Money Markets, and a selection of investments paying 10 to 17 per cent., and such information as is necessary to guide intending investors.
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WALTER TREGELLAS, 122, BISHOPSGATE STREET WITHIN, LONDON, E.C., DEALS in all STOCKS AND SHARES, either for cash or the fortnightly settlement.
SPECIAL BUSINESS in the following gold mines :—

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MR. J. N. MAUGHAN, STOCK AND SHAREBROKER
(Member of the Stock Exchange),
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ASSAYS AND ANALYSIS.—MR. JOSEPH GREEN, for the past eighteen years professional Assayer to the Chester Goldsmiths' Company, UNDERTAKES the ASSAYING and ANALYSIS of EVERY DESCRIPTION of MINERAL.
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ASSAYER, &c.,
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MR. J. S. MERRY,
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LEAD SETTS.—MR. W. PAYNTER, JUN., has FOR DISPOSAL several LEAD SETTS, all of which are situate in good LEAD PRODUCING DISTRICTS, and promise well for produce on a small outlay.
For further particulars, apply to Mr. W. PAYNTER, Jun., Wadebridge.

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MR. H. D. HOSKOLD,
MINING ENGINEER,
LAND AND MINERAL SURVEYOR
CINDERFORD, NEWNHAM.
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N.B.—Sales and purchases of lands, quarries, and mining property negotiated upon the most advantageous terms, and with all possible dispatch. Explorations made or supervised, and reports prepared where required with the utmost care. Public attention is called to the fact that, owing to his experience as Gold Commissioner and Chief Commissioner of Mines, and as one who has been for years engaged in practical mining and geological explorations, Mr. HAMILTON has had opportunities which no other person has heretofore possessed or becoming intimately acquainted with the mineral resources of Nova Scotia.

MR. M. MORGANS (late of the Brendon Hills Spathose Mines), CONSULTING ENGINEER, is prepared to REPORT on MINERAL PROPERTY, DESIGN and ESTIMATE for new ENGINEERING WORK, or to undertake the efficient working of MINES, ENGINES, PUMPS, &c., by periodical inspection, on moderate terms. Twenty-eight years' practical experience in managing large collieries and mines, railway construction, erecting mining machinery, rolling mills, furnaces, &c.
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MESSRS. A. STUART AND CO., STOCK AND SHAREDEALERS, 93, BISHOPSGATE STREET WITHIN, E.C.
Are in a favourable position to deal in all foreign gold and silver mining companies. In Cornish and Devon tin mines we think everything is very favourable for increased dividends, and a great rise in price of some shares. We shall be happy to forward on an after April 2 our circular of "Profitable Facts," post free.

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Reprinted from "Engineering;" revised and enlarged by the Author.

From the IRON AND COAL TRADES REVIEW.

The book will assuredly be of good service to the trade, particularly those who are practically connected with iron or steel works; and we have no doubt it will have an extensive circulation in all the iron-making districts.

From the MINING JOURNAL.

The book is one which will unquestionably long enjoy an enviable reputation as a record of the position and prospects of the iron and steel trades at the periods to which it relates, and, at the same time, one which will give rise to many suggestions calculated to render the importance of those trades still more extensively recognised.

WILLIAM MACKENZIE, 22, PATERNOSTER ROW, LONDON, E.C.; AND 47, HOWARD STREET, GLASGOW; and SIMPKIN, MARSHALL, AND CO., LONDON.

The Tin Valley Mining Company,

IN THE PARISH OF

ST. NEOT, NEAR LISKEARD, IN CORNWALL.

CONDUCTED ON THE COST-BOOK SYSTEM.

It is long since a mining adventure so inviting in all respects as this has been introduced to public notice. For a considerable time past the metal markets generally have suffered under great depression, and tin especially has been down in price. The hope of an improvement has been long deferred, but it has happily been realised at last, the price of tin having gradually advanced during the last six months, from £45 to £75 per ton. This great improvement and the well-founded expectation of still further advances in tin have given life and animation to all the Cornish districts in which that metal is found, and miners and shareholders are alike participating in the results—increased labour and increased profits. Very deep mines, that could not be worked at a profit, are beginning again to make ample returns, and the falling off in the foreign imports tends to give further firmness to the markets.

The Tin Valley Mine, as we have already intimated, presents almost unparalleled attractions. Referring to the subjoined reports of Captains John Nancarrow, James Rowe, and Richard Southey—whose reputations as mining engineers stand in the very highest rank in the county—for the details of the sett, which is of large size, and is most advantageously situated for all the purposes of mining, we would call especial attention to the important facts that nearly all the machinery and plant necessary for working the mine are in good order; that the outlay for completing the arsenic-houses, for which there is plenty of work already on the ground, will be very small; and that the funds in hand will be ample, not only for this purpose, but for continuing the workings now being prosecuted, until the returns become sufficiently profitable to pay good dividends, which there is well-grounded reason to say will be within the course of the present year. The cost of working is comparatively small—not more than from £60 to £70 per month—no steam-power being required, and the immense quantities of halvans at surface, containing tin and arsenic, will at once make profits.

In addition to the tin lode, upon which an adit is being driven, and from which, towards the eastern boundary, a considerable quantity of tin has been raised, there are four other lodes, two of which have been partially worked, and produced large quantities of rich copper ore, tin, and arsenic. They are still rich, but are for the present held in reserve, the operations being confined to the tin lode, from which profitable returns of ore will be sooner realised.

In justification of the decided opinion we have of this adventure we refer to the following condensed reports of three men, upon whom all who know anything of mining undertakings will rely. These show that the completeness of the machinery, and other appliances for working, and the inconsiderable amount of expenses necessary to lay open further and large quantities of rich ore ground, with the profits at once realisable by the working of the halvans now at surface, place the undertaking in an almost incomparably favourable position.

EXTRACTS FROM THE REPORTS.

Camborne, Cornwall.—The sett is about half-a-mile square, and contains five lodes, which run a little north of east and south of west, and underlie south. The stratum is killas. The north lode has been worked to the 80 fm. level, and the main lode to the 110 fm. level. They have both yielded large quantities of rich copper ore, with tin, arsenic, &c., which would, if they had to be worked now, give good profits. The principal object, at the present time, is a large tin lode, 50 fms. south of the main lode. It has been worked in the eastern part of the sett, but only to a depth of 40 fathoms, and to a very limited extent in length. Those who worked it state the return to have been so high as 14 tons of tin per month, and that, although it was worked by the application of steam-power, and under great disadvantages, it gave good profits. An adit is being driven eastward on this lode from the western part of the sett; it will soon be from 30 to 40 fms. deep, and the lode is likely to be very productive both for tin and arsenic, and to well repay the cost of driving, so that a good mine may be opened without the expense of machinery for pumping. There are thousands of tons of stuff on the mine at surface, containing tin and arsenic, that may be worked to profit, which will help to pay for driving the level, so that the whole of the outlay required will be extremely small. Looking at this mine as a whole, but especially at the lode intended to be worked, its position, and the value of the lodes near it; considering the inexpensive character of the ground, the small outlay required, and the great probability of success, it is very rarely the case that such chances are presented at so small a risk. JOHN NANCARROW.

Camborne, Cornwall.—The mine sett is 400 fms. long and 400 fms. wide, and has five known lodes in it. About fifteen years since two of these lodes were extensively wrought on, and produced large quantities of copper, together with some tin. One of the lodes was wrought on 80 fms. deep, the other was wrought on to the 110 fm. level. The water was pumped by a 60-inch cylinder engine. The mine was managed in a loose way, and, for that reason, did not pay any profit. About 50 fms. to the south of the main copper lode they discovered a tin lode. They sank a shaft, 40 fathoms deep, on the lode, and in a short time they raised £15,000 worth of tin from the surface to the 40 fm. level. Tin at that time was not of such value, nor was it thought so much of as now; the price then was £45 per ton; the same quality tin now would bring £75 per ton. Very little exploring tutwork was made on the tin lode; they first followed the tin, took away the best part of the lode, and abandoned it. About 200 fms. west of the old working this same tin lode is to be seen cropping out to surface in the side of a high hill. The parties who have taken the sett have opened on the lode in the side of the hill, about 8 fms. above the river. The lode is regular and well defined; it is 3 ft. wide, and contains some highly promising gossan, large stones of mundic, and some good tin. As far as seen it is a very kindly lode. There are several advantages connected with this mine seldom met with in putting a mine to work; the most important is their having thousands of tons of halvans on the mine that will do to stamp for tin and arsenic. There is a good water-wheel and eight-head stamps, which can be got ready for working in three or four days. A few pounds will put the dressing-floors into good order. The halvans, after it is stamped, contains large quantities of arsenic, worth £4 per ton. The last time the mine worked it was of very little value. A large stream of water is available throughout the year for stamping or pumping, if it should be required. Building-stone is to be had very cheap. Looking at the character of the lode, and the advantages just named connecting themselves with the mine, I consider it to be a speculation of no ordinary character, and one I can strongly recommend to capitalists. It must be borne in mind that there is no deep mine to unwater, and no expensive machinery to erect, but a mine to commence from surface with such good prospects of success as can be seldom met with. JAMES ROWE.

Truro, Cornwall.—Five well-defined lodes run throughout the entire length of the sett, two of which have only been wrought on to a limited extent. On the copper lode little is done below the 62 fm. level. On one of these lodes, called the Tin Lode, from very limited operations, tin to the value of £15,000 was raised and sold, from only 35 fms. from surface. For 150 fms. in length this lode has never been touched, and can now be seen cropping out on the side of the hill, 200 fms. west from where the former workers had such a very rich tin lode; it is 3 ft. wide, improving as it goes down. No steam-power is required, as there is a splendid stream of water of ample power for any machinery that may be required for years, and there is now erected a new water-wheel and eight-head stamps, all complete, with buddles, and other appliances for dressing tin. It is intended to complete the burning-houses at once; when these are finished, to calcine the ores, and have arsenic-chambers made so as to catch the arsenic, now selling at from £3 to £4 per ton, the sale of which will be all clear profit to the company. In addition to tin from the underground workings, there are now several thousands of tons of tin halvans at surface immediately available for the stamps, and immense burrows that will also pay to be turned over, and from which large quantities will be extracted. At the time these were last worked tin was only £45 per ton; the same is now £75. The geological features are all of the best character, being killas near granite, intersected by elvan and cross courses. Taking all into consideration, the early results to be obtained from these mines, the extent on the course of the tin lode unworked, and the richness of the ore for tin and arsenic, together with the absence of any necessity for costly works of a speculative or experimental character, I have no hesitation whatever in saying that it is a *bona fide* undertaking, and, with judicious management, must result in a profitable and lasting mine.
RICHARD SOUTHEY.

Messrs. BARTLETT AND CHAPMAN strongly and conscientiously RECOMMEND an INVESTMENT in this UNDERTAKING; and they further advise a PURCHASE BEFORE THE SHARES ADVANCE IN PRICE, as they inevitably must do, independently of the effect of a FURTHER ADVANCE IN THE PRICE OF TIN, which the trade confidently anticipates.

The company is on the Cost-Book System, which ensures to the shareholders the immediate control and management of all proceedings. The mine is divided into 6000 shares, of which they can offer a limited number at £1.

2, Bucklersbury, London, E.C.

ABRIDGED PROSPECTUS.

The Dolwen Company, Limited.

CAPITAL £5000, IN 5000 SHARES OF £1 EACH.

DEPOSIT 10s. PER SHARE.

DIRECTORS.

MR. ALEXANDER BRIDGE, 7, Argyll-place, Regent-street, W.
MR. J. B. BALCOMBE, Aberystwith (Managing Director Bronfloyd Company).
MR. CHARLES FAUNTLEROY, Russell-street, Bermondsey.
MR. JAMES RHODES, Hanover-street, Islington, N.

BANKERS—THE NATIONAL PROVINCIAL BANK OF ENGLAND, ABERYSTWITH.
BROKER—MR. EDWARD BALCOMBE, 47, Threadneedle-street and Stock Exchange.
AGENT—CAPTAIN JOHN DAVIS, Manager, Llywernog Mine.
SECRETARY—MR. HENRY FERGUSON.

OFFICES,—QUEEN'S ROAD, ABERYSTWITH.

This company was incorporated March, 1867, in 1000 shares of £5 each, with the object of purchasing a lease for 21 years from October, 1866, arranged to be granted by the Hon. J. Kenneth Howard, Chief Commissioner of Her Majesty's Woods, &c., of the mines and minerals contained within and under 798 acres of land known as Bodcoll and Dolwen, and to work the said mines. Owing to the then pending commercial crisis only 421 shares were subscribed for; however, the proprietors, acting under the best obtainable advice, determined to take up the lease, and to carry out further exploratory trials in order to test the south lode. The work that has been so done will be best evidenced by the joint report appended to the prospectus of the agents of the Llywernog and of the celebrated Bronfloyd Mines.

The property is situated about 14 miles east of Aberystwith, 2 miles from Devil's Bridge, and about 1¼ from Cwmystwith. It contains two masterly lead lodes; the south one being, according to repeated diallings, the same lode as the celebrated Frongoch of the Lisburne Mines Company, under the management of Messrs. John Taylor and Sons, which, upon a capital of £7500 (400 shares, £18 15s. paid), have yielded and returned £510 per share—total dividends, £204,000.

Its position will be further explained by the reports of Mr. J. H. Hitchins, consulting engineer to the Devon Great Consols Mines, and by Mr. Matthew Francis, C. E., formerly chief agent of the Frongoch Mine.

The directors were advised that Dolwen was one of the most promising pieces of unexplored mineral ground in the Principality, the development of which had been hindered by the questionable title of the Crown lessee; however, as in the interim the difficulties affecting the old lease were overcome by a new grant at one-fourteenth royalty direct from the Crown, they put in hand the exploratory trials recommended, and the result abundantly proves the soundness of Messrs. Hitchins and Francis' advice. These operations have been solely confined to the Dolwen or eastern portion of the property, and it is a significant fact that Messrs. John Taylor and Sons have recently purchased from this company the western ground, and formed a separate company to work the same.

In order to extend the basis of the present company, special resolutions have been passed to subdivide the 1000 shares of £5 each into 5000 shares of £1 each, without further liability—2000 of these shares will represent the outlay of the company to the present time, and the remaining 3000 shares will form the future working capital. Of the 3000 shares, 755 have been privately subscribed for, and the directors may add that as most of the speculative character attending the opening of a mine is in this case at an end, they offer to public acceptance the remaining shares (reduced to a minimum liability), believing that the economical application of the capital so to be raised will, with steady perseverance, develope a fine property.

Prospectuses, containing the full reports of the consulting engineers and mining agents above referred to, may be had on application to Mr. EDWARD BALCOMBE, Sworn Broker, 47, Threadneedle-street, and Stock Exchange, London, or at the offices of the company.

Original Correspondence.

COAL-CUTTING MACHINERY.

There is scarcely anything in connection with the mining operations of this country which appears just now to be of more importance than the efforts which are being made to produce machinery by which coal and other mineral can be raised in a more expeditious, a safer, and cheaper mode than at present. The ordinary process of cutting a groove in the seam with a pick is at once laborious, tedious, and wasteful, owing to the large quantity of slack which is made by it. Blasting is also admitted to be attended with considerable danger, so much so that in very many pits it is not allowed. With these facts in view, several machines have been brought under public notice during the last seven or eight years, but most of them, for all practical purposes, were short-lived, the greater part having scarcely survived the first stage of the Patent Office. Two or three, however, have managed to live, and, aided by stimulants in the shape of constant additions and improvements, are now doing good work, and effecting a considerable saving to those who use them in comparison with what is paid for hand-work, although it may be that they have not arrived at that state of perfection which they are destined ultimately to attain. For the purpose of stimulating the inventive faculties of machinists and others, various pecuniary inducements have been held out from time to time by colliery proprietors, who, owing to strikes and disputes, have had their works stopped, and who saw in an effective and easily managed machine a means for counteracting to some extent the efforts of Trades Unions, and so lessening their dependence on the members of them. The first step in the direction named was made by the South Yorkshire Colliery owners, in 1864, at a time when a serious dispute was raging throughout the district, and many pits all but closed. They subscribed 500*l.* towards the putting down of three machines, which we believe were manufactured on the patent of Mr. JONES, of the Blaina Iron Works, Monmouthshire. For some reason the machines did not appear to answer the expectations of those who used them, owing, it was stated, to their not being constructed of good material by those who made them—a fault, of course, with which Mr. JONES had nothing to do. That gentleman has since then greatly improved his machine. So recently as last year it was expected that an exciting contest, in which various machines would take part, would come off in the Wigan district, the Lancashire and Cheshire Coal-owners' Association having offered 500*l.*, 200*l.*, and 100*l.* as prizes for the best machines. Unfortunately the conditions were such that only three competitors entered the lists, so that the prizes were withdrawn, and the whole affair collapsed, much to the disgust of the inventors who had been at the trouble and expense of having machines made and patented for the purpose of taking part in the competition. The association above alluded to laid down one rule, which we believe is now fully recognised—that compressed air is the proper motive-power for working coal-cutting machinery. There is another advantage in such a power, which would be of signal benefit in deep collieries—that a large supply of fresh air at a low temperature could always be ejected into the workings. The invention of Mr. STURGEON, which we noticed some time since (in connection with Mr. FIDLER'S and Messrs. FARRAR and BOOTH'S) appeared to combine many points of excellence, but, as we are not aware whether the machine has been worked or not, we cannot, of course, give an opinion as to its real value.

Of the early machines which have been successfully worked, the premier place must be given to those of Messrs. FIRTH and DONISTHORPE, of Leeds, and two of which are at the present time to be seen at work in the West Ardsley Colliery, whilst one of them (in a less perfect state than those now in use) was successfully tested at Hetton so far back as 1863. They are worked in various parts of the country, and have given great satisfaction. A few days since, whilst in the neighbourhood of the Ardsley Colliery, we were informed by Mr. FIRTH that two of the machines which were then at work were getting from 1000 to 1200 tons of coal per week, and that with some alterations that were about to be made they would be able to raise 1500 tons weekly. Mr. DONISTHORPE, in addition to being interested in the last-named machine, has recently taken out a patent for certain improvements, which promise to be of considerable value.

It would appear that Leeds has some claim to be considered the birth-place of the coal-cutting machine, and that the early successes of Messrs. FIRTH and DONISTHORPE led other practical men in the same place to direct their attention to the matter. Amongst others, Messrs. CARRETT, WARRINGTON, and STURGEON brought out a pick machine, in which the necessity of a separate under carriage, or truck, was entirely dispensed with, the different parts being directly and suitably attached to the cylinder, or prime mover. Messrs. CARRETT and MARSHALL also brought out a machine, the motive-power being water, and which was worked very successfully up to a recent period at the Kippax Colliery, near Normanton. Mr. JOS. ROTHERY, of the Waterloo Main Colliery, Leeds, has also paid a great deal of attention to the subject, and has taken out several patents for machines. He has quite recently patented certain improvements, which he considers will greatly enhance the value of his previous work. By certain arrangements a great economy of power is obtained, and the machine itself is rendered more steady when in action. By one mode the inventor combines together, end to end, two cylinders of different diameters open at their outer ends, and each having a piston working therein. The smaller cylinder and piston is to produce the return or back stroke of the pick or cutter, whilst the larger cylinder serves to give the cutting blow to the pick, or cutter. The connecting-rod, which transmits the motion to the axis of the pick, is partly contained within the actuating cylinder itself, and so economises space. Another mode by which the same object is attained is by closing the outer ends of the two cylinders, the piston-rod passing through a stuffing-box in the end cover of the small cylinder. The two cylinders are open to each other at the inner ends, and each is provided with a separate piston, carried on the same piston-rod. The steam or compressed air is admitted behind the larger piston to produce the cutting below, and is then admitted in front of the smaller piston to produce the return stroke of the cutter.

By another plan the cylinders are placed side by side, and are closed at the back and open at the front end, the piston-rods of the two working in opposite directions, and are joined by connecting-rods, contained within the cylinders, to short lever-arms on opposite sides of the pick axis. The cylinders and parts connected with them are carried on an adjustable bed-plate, which turns on a vertical pivot on the truck or carriage of the machine, in order to allow the picks to work on either side of the machine, as required. The machine, which has been adapted to work in a thin seam, has been tested, and found to answer admirably. It can be worked in a seam 12 in. thick, a matter of great importance, seeing the difficulty experienced in getting such thin seams. Mr. ROTHERY is sanguine that it will be found all that can be desired, and seeing that he is a viewer, well acquainted with what is required in a colliery, his opinion on the subject is worthy of every consideration. Amongst the other machines which the new year ushered in may be noticed one patented by Mr. C. J. CHUBB, C.E., of London, and which is of a novel character, and renders unnecessary the usual operations of hewing or cutting the coal at the top, bottom, or sides, and enables those operations, and also that of blasting, to be dispensed with. A hole is made in the coal or other material in the usual way, by boring, drilling, or jumping of sufficient depth and diameter to admit of the insertion of a pressing apparatus, which is capable of being expanded by direct hydraulic or fluid pressure, and which, when expanded, splits or separates the material to be gotten from the solid, so that it can be readily removed. The pressing apparatus consists of a cast-steel or other metal trough, or elongated cell, into which is fitted an elongated plunger, having a cup or packing of leather to form a water-tight joint and a rounded external face. The pressing apparatus is inserted into the hole made in the coal, which is connected with an ordinary force-pump. Liquid is then pumped in, and forces the two parts of the apparatus apart, so as to apply a very powerful pressure against the sides of the hole, which is increased until the coal yields to the pressure and splits off in masses. Instead of using a press, a series of cells may be used, in each of which a plunger may be made to work, the cells being connected, and filled by liquid forced into them simultaneously from the force-pump, so as to cause each plunger through the bar to which they are all connected to exert a pressure upon the sides of the hole in which the series may be inserted. We

believe that the machine with 12 plungers has been tested, and with the most satisfactory results, and two men could break down 20 tons of coal in an hour. It has been stated that the collective area of the plungers was 24 square inches, and as the pump could exert a pressure of 12 tons on the square inch, a total pressure of 288 tons could be brought to bear on the coal.

Another invention, on which the stamp duty of 50*l.* has just been paid into the Patent Office, relates to a machine constructed by Mr. CHARLES BARTHOLOMEW, of Doncaster, a gentleman largely interested in the coal trade, and a director of the South Yorkshire and other railways. The main object in view is to get the coal or other mineral without blasting or wedging. The invention in the first instance consisted of a rod passing through a tube, both being combined together at one end by a hydraulic or screw-press, and at the other end the tube being provided with pieces that could be forced out from it, and caused to act as "lewis." When in operation a hole was drilled through the block to be drawn forward, when the end of the tube carrying the "lewis" was introduced into the hole, and then the end of the rod was caused to press against the solid coal at the back of the block, the "lewis" having been forced outwards by the introduction of the rod. By working the press the tube was then drawn forward, bringing with it the block of coal. An important improvement was made in the apparatus, so far as the construction of the "lewis" or strut pieces, which are forced outwards from the tube into the coal. The tube is made of less diameter than the hole into which it is to be introduced, the end of the tube having a conical head, the base of the cone being made nearly to fit the hole. The "lewis" or strut pieces that are to be forced into the coal are formed with inclines corresponding to the incline of the cone, so that when the tube is being drawn back to draw forward a block of coal the conical head at its end is constantly pressing the "lewis" or strut pieces outwards into the coal, and causing them to hold more and more firmly. The "lewis" or strut pieces are formed of segments of a tube, which embrace the end of the tube with the conical head, and are made internally with inclines at one end, corresponding to the incline of the conical head. Each segment at its opposite end has a piece projecting inwards, and slots are formed in the tube, into which those projecting pieces are received. Inclines are formed upon the ends of the pieces projecting, the inclines on one end of each being acted on by the sharpened end of the rod which passes through the tube.

The inclines at the opposite ends of each projecting piece are acted on by inclines at the ends of the slots in the tube through which they pass. The apparatus is then introduced into a hole bored in the coal, and the rod is then fixed into the tube, so that the conical or sharpened end acts on the inclines on the projections of the segments, and forces the latter outward, so pressing them into the coal. The end of the rod then bears against the back of the coal, the press is set to work, and the tube drawn forward, so that its conical head, and also the inclines at the ends of the slots, first act to further press the segments into the coal, and causes them to hold more firmly. The tube then draws forward the coal in which it is fixed, and thus detaches and wrenches off the piece or block of coal operated upon. There are other means by the same appliances by which the same object can be effected. The machine, which a man can almost carry in one hand, was tested by Mr. BARTHOLOMEW, and with most satisfactory results, as we were informed by that gentleman a few days since. We may, therefore, expect in due time to hear more of it, seeing that the South Yorkshire district promises to shortly be in a very unsettled state, so far as the mining body is concerned, and as Mr. BARTHOLOMEW has a considerable interest at stake in some of the largest collieries in the neighbourhood of Barnsley, and, therefore, doubly interested in the success of an invention having for its object the getting of coal in a more economical and expeditious manner than by hand.

An hydraulic "coal-breaking" machine, brought out by Mr. S. P. BIDDER, jun., Assoc. Inst. C.E., and who is connected with the Harecastle Collieries, at Stoke, in Staffordshire, has created a good deal of interest, having many points which are not only novel, but which have turned out highly effective. A short time since Mr. BIDDER, in conjunction with Mr. JOHN JONES, devised a machine, which had been submitted to an actual trial on a working scale at the Harecastle Colliery, and the results were so satisfactory that the proprietors made arrangements for their immediate adoption. The machine consisted of a small hydraulic press, of 12-tons power, to which was attached a pair of tension bars, bent in the form of a connecting-rod or hinge-strap. They were placed one over the other in the bore-hole, and between them, at the extreme end, there was a clearance-box and two metal pressing-blocks, between which was forced, by the action of the hydraulic press, a split wedge, 15 in. long, causing a lateral expansion of 3 inches. The ram was then withdrawn, and a second wedge was inserted between the two parts of the first wedge, and was forced up until sufficient expansion was obtained to break the coal. The operation could be repeated several times if found necessary. The whole apparatus would weigh about 70 lbs. The hydraulic press was in future to be made of steel, and the ram would be cored out. In practical working each gang of colliers would be provided with the tension bars and three wedges, while the presses would be under the charge of the men who at present occupied the position of firemen, so that no new class of labour would be introduced, while the risk of firing would be got rid of. Trials had been made both in the Seven-feet and the Nine-feet seams at Harecastle; and in the latter, with three wedges, about 12 tons of coal had been brought down in only three or four pieces. It was found that the press could be applied, and the blocks brought down in less time than was consumed by firing and waiting for the smoke clearing. Mr. BIDDER says that explosions in mines being known to arise very frequently from the employment of gunpowder for blasting, and in the interests of humanity alone an efficient substitute had long been desired by practical men; and this, it was believed, had been accomplished by the machine under consideration, which had also the advantage of preventing the waste of coal incurred by the present system.

Mr. BIDDER informs us that the machines are now being used in the collieries at Harecastle with great success, bringing down the coal as fast as it can be removed from the place where it falls, and in vast blocks—so that no small coal is made, thus effecting a very great saving. Another important object is also attained, as there is no risk of a loss of life, as at present. So highly is the machine thought of by the proprietors of the Harecastle Colliery that so soon as some new machines now being completed are ready powder will not be again used, and so sanguine are the proprietors that they state their belief that the machine will be pretty generally adopted, and powder cease to be used throughout the country in mining operations. The invention which has been brought under notice is now attracting a good deal of attention, and we believe will well repay a strict investigation on the part of colliery proprietors in all parts of the country, and to whom we would recommend a personal inspection, seeing that the machine is likely to take a very prominent place in the getting of coal.

The last machine brought out is one by Mr. GILLOTT, of Barnsley and Chapeltown, and Mr. COPLEY, of Warren, and which is entirely different from those either in use or brought under public notice. It consists of a toothed wheel, with cutters fixed on the periphery, turning on a stand secured to a plate, which covers and carries the wheel beneath the body of the coal, and is driven by ordinary gearing. The machine cuts from the bottom to the face—differing from most other machines in that respect—and so brings out the whole of the material by a clean cut. In working, one cutter follows the other, so that there are always some at work, whilst any of the cutters which have been injured can be easily replaced by stopping the machine for a minute or so.

The above is a brief review of the machines which have lately been introduced for the purpose of getting coal by an easier and more economical mode than at present. How far they will ultimately prove to be successful time alone will show, but amongst them there are several, we have very little doubt, that will be found to work remarkably well, and probably capable of considerable improvement, which will render them all that can be desired. There can be no question that machinery for the raising of coal will supersede hand-labour, or, at least, take away from the collier the most laborious part of his daily work. There is really no reason why, as has been asserted by one enthusiastic inventor, a collier should not descend the pit to work with a machine in one hand, and a lamp in the other. If such can be done then, indeed, will there be a revolution in the coal trade, and strikes and lock-outs will be things of the past. In the machines which we have enumerated there are, at least, the germs, we believe, of that power which the colliery owners in all parts of the country have long been looking for, and which, with ordinary cultivation, cannot help arriving at a high state of perfection.

THE NEW SYSTEM OF IRON AND STEEL MAKING.

SIR,—Your Eston correspondent commences his letter by some small attempts at pleasantry. If any of your readers are able to discern the wit of these attempts, they are welcome to laugh at them. Others, who recollect the old proverb, "*Dulce est desipere in loco*," and who think with me, that a scientific discussion on an important subject is not the proper opportunity for playing the fool, will do as I do, pass them by. Still, perhaps, we must not be too critical. It says something for the progress of Eston that there should be some one in it capable of writing a letter a column and a half long, even though it be nonsense. Your correspondent complains that we have discussed the merits of the Bessemer and other processes. Granted, we have done so, and I for one am unable to see how the steel question can be adequately discussed without reference to the modern processes, especially Mr. Bessemer's. Your correspondent's next complaint is that we lack "chemical originality." The phrase "chemical originality" is not very clear to my mind. Surely your correspondent did not expect us to invent a few special laws of nature for the occasion. Then he complains of our believing that pure carbon and pure malleable iron are all that are *necessary* to make steel; and that though other bodies *may* be present, it does not follow that they *must* be; and he indulges your readers, as the newest thing out in metallurgical chemistry, with Mr. Binks's theory, propounded in 1857, that nitrogen was a *necessary* constituent of steel, and upon the strength of which Mr. Binks took out three patents, which have passed into oblivion. Now, I shall not waste the time of your readers in discussing this theory; it has been over and over again disproved; and those who wish to learn what is the present scientific opinion on the point may refer to "Percy's Metallurgy," or, as it happens, if they turn to page 175 of the same number of your Journal as that in which your Eston correspondent's letter appears, they will find the latest expression of English science on the point, which I need, perhaps, hardly say, is quite opposed to your correspondent's assertions. But he has been getting out of his depth in writing about steel, of which he clearly knows nothing whatever. He says it is well for us that we ignore this nitrogen theory, evidently not having the least glimmering of the fact that the nitrogen is present in our process in the same form and condition that it is in other iron and steel making processes. If your correspondent really wishes to discuss the subject with a view to gain information, and arrive at the truth, as he professes, but which the tone of his remarks fails to confirm, I am quite ready to meet him, but it must be on one condition. We will have no *aliases* or anonymous disguises. He must do as I do, affix his real name to his communications.—*March* 23. T. C. HINDE.

NITROGEN AND STEEL.

SIR,—I read in your valuable Journal of March 13 a letter signed "H.," and entitled "On the New Method of Steel Making," in which allusion is made to a paper on Iron and Steel, read before the Inventors' Institute, at a meeting over which I presided, and the opinions which I am stated to have expressed on that occasion do not correspond at all with the words I uttered. Your correspondent, and also your report of the meeting in the Journal of March 6, state that I believe nitrogen could become available in steel making by the formation of cyanides. Now, Sir, what I did say amounts to this:—

1.—That nitrogen has no influence in steel making; that the quantity of nitrogen found in steel is so excessively small, and so inconstant, that we cannot suppose it to have any effect upon the metal.

2.—That upon submitting iron and steel to analysis more nitrogen is found in pig-iron than in steel.

3.—That the reason why nitrogen was supposed to have some influence in the production of steel is this:—Experience has shown that cyanides, and other nitrogenous substances, facilitate the cementation of wrought-iron; carbon, which is very hard burnt, will not cement at all, but in cyanides and other organic compounds the carbon is set free in a very good condition for cementation.

I beg you will insert these few lines of explanation in your next Journal. T. L. PHIPSON, Ph.D., F.C.S.

Analytical Laboratory, Putney, S.W., March 24.

OXIDE OF ZINC.

SIR,—In the *Mining Journal* of March 13 a correspondent, who signs himself "W. J." (Swansea), asks for the name and address of the Irish mining company to whom reference had been made in your columns as having recently erected oxide of zinc works. Appended you have our address, and if your correspondent is a buyer, and will write to me, I shall be most happy to afford him every information he may require, and to send him samples, if desired. Our company possess the only known and developed calamine deposit in the United Kingdom, which is identical with the deposits in Belgium, owned by the Vieille Montagne Mining Company. For many years we shipped our ores to the smelters at Swansea and elsewhere to be converted into spelter; but, with the view of establishing a permanent business in the manufacture of oxide of zinc, now so extensively used as a pigment, and in the manufacture of India-rubber fabrics, we have recently erected extensive works for the conversion of our calamines into oxide of zinc, and I am happy to inform you that we are now producing an article which successfully competes with either the American or the Flemish oxide. H. C. FOWLER, Sec.

General Mining Company for Ireland (Limited), 29, Westmoreland-street, Dublin, March 24.

TIN MINES OF MISSOURI, U.S.

SIR,—I rather regret having so long deferred my correspondence in regard to the tin discoveries in Missouri, and their further development. It, however, affords me much pleasure to assure you that I have not delayed writing in consequence of any doubt on my part of the existence of tin, but rather with the view and the hope of ere this informing you that Missouri tin had been offered in the market. Unfortunately, as yet this hope has not been realised, but I am of the opinion that the time is not very far distant when sales of Missouri tin will be regularly and permanently quoted among the already numerous and valuable mineral productions of this state, and that the stocks of our tin mines will be especially sought after, and become a favourite investment both at home and abroad. But in the intermediate time much has to be done to accomplish this, to us, great desideratum—to say nothing of yet having to live down our home prejudices, and even to overcome the openly unfavourable expressed opinions of some of our own prominent assayists, without regarding foreign ones; yet I do not think that we in Missouri ought to complain too bitterly of this want of confidence in such an undertaking, when even in Cornwall similar prejudices exist, to a limited extent, against newly-discovered tin districts; but in Cornwall such prejudice are more easily overcome than with us. They have an abundance of capital, and a lavish supply of skilled labour, combined with the experience of centuries for their guidance, while we in Missouri have all and everything pertaining to tin mining to create *ab initio*—to say nothing of having to depend upon doubtful labour, and the opinions *pro* and *con.* of interested parties. In my previous correspondence I informed you of the progress made from time to time by Messrs. Moody, Michel, and Co. in developing their tin mines in Madison county, in this State, and, although more than a year has elapsed, and over $60,000 have been expended during this time by them, yet their zeal and determination to prosecute their undertaking to a successful issue is still unabated, as they continue to gain new life from every new development. Their mining operations thus far have been confined to the mountain now known as Tin Mountain, which has been pierced horizontally from the summit down, at certain given distances, on the lode, by some four or five tunnels, to an extent of several hundred feet. The result of these excavations has proved all the most sanguine could expect. Their efforts, however, of late have been more especially directed to the driving of a tunnel about 100 ft. above the base of the mountain, which, when a little further extended, will be directly within and about 800 ft. below the summit of the mountain, and under the solid formation of the lode. The ore already taken from this excavation shows marked improvement in richness of tin. A yield of from 3¼ to 5 per cent. of pure refined tin has already been obtained by careful assays made by an expert, in whom I have the greatest confidence, and who assures me that before long he anticipates to obtain from 10 to 12 per cent. of tin in a general working way from the ore of this tunnel. Simultaneously with these operations the proprietors have expended large amounts of money in placing machinery on the ground, including engines and boilers, while the most substantial buildings have been erected for their reception, and every preparation made for the erection of furnaces—to say nothing of the thousands of bushels of charcoal already prepared, and put up for smelting purposes. I name all these details with the view of showing that there has been no flagging on the part of the proprietors to accomplish that which they have so nobly undertaken to do, without as yet asking or even seeking any assistance from others. I am of opinion, however, that they might profit by seeking English capital, as it would most assuredly bring with it experienced tin mining engineers, skilled miners, dressing, smelting, and other tin operatives, necessary for the successful working of a tin mine in this country; and in return capitalists would receive a higher rate of interest than could be possibly obtained from any similar investment in England, as the lay of the country in which the ore is found is such that it can be mined in a very economical manner, while the ore itself is just as inexhaustible as the coal beds of England. Other and, perhaps, more important considerations might, at least, induce those in England who are interested in the supply and demand of tin to send out an expert in tin mining, to investigate for themselves the existence or non-existence of tin in Missouri. In conclusion, I will add that some few months ago I had the pleasure of meeting, in St. Louis, Prof. Vincent, of your city, and, in conversation with him on our discovery of tin, he expressed himself most favourably in the belief that tin existed in large quantities in Missouri, and gave very satisfactory scientific reasons for arriving at such a conclusion, from what he knew of the bordering country, without having made a direct personal investigation of the precise tin locality. Prof. Vincent would have made this investigation at the earnest solicitation of Mr. Moody, of the firm of Messrs. Moody, Michel, and Co., but his prior engagements were such that it was impossible for him to comply with Mr. Moody's request.

St. Louis, Missouri, U.S. R. W. DUNSTAN.

THE "BARTLETT LEAD."

SIR,—My attention has been called to an article in the *Mining Journal* of Feb. 6, in which doubts are thrown upon the facts and deductions concerning the "Bartlett Lead," a newly-discovered pigment, as given in the London *Times* of Feb. 4. You are first made to allude to a confusion in the location of the mine, which any reader could perceive was simply an editorial mistake, for which the writer of the notice is in no way responsible. My letter states explicitly that the *mine* is in North Carolina, and the *manufactory* in the State of New Jersey. You say, then, that it is asserted that the "ore, which contains various metals—lead, silver, zinc, copper, gold, iron, and manganese—is treated so as to remove the silver, lead, and gold, and when the residuum has been subjected to a white-red heat the powder becomes impalpable and delicately soft, and of a pinkish chocalate colour." My description certainly does not convey the idea herein implied, that there is no lead in the manufactured paint. I state that "a *part* of the richest material is separated by Cornish buddles, to be smelted for silver, and lead, and gold; but the remainder of the ore (not the residuum of such smelting) is spread out to partially dry, and is then roasted"—producing the brown paint in question. It is not contended either that any given portion of the ore contains the whole of the metals above detailed, but simply that "it is quite common to find in the workings a wonderful variety and association of minerals." To show that the product is not, as you suggest, an impure iron paint, I enclose the testimony of a distinguished New York chemist, a member of our School of Mining. This gentleman concurs with other chemists who have analysed the pigment in the assertion that the natural combination of lead and zinc it presents is perfectly new to science, though they do not go quite so far as to explain it by the "transmutation of metals," to which you allude. I may add that no mystery is made with regard to the discovery. The paint is coming into very extensive use in this country, and as it is already being brought before the English public your readers can, if so disposed, investigate its qualities for themselves. THE WRITER OF THE LETTER IN THE "TIMES."

New York, March 9.

"School of Mines, Columbia College, New York, Nov. 19, 1868.—SIR: The Bartlett Lead which I saw manufactured at your works at Bergen Point, and which I have carefully analysed, consists of an intimate mixture of zinc and lead, which can only be produced from ores such as you are working. This natural mixture of zinc and lead possesses the most valuable properties—properties which are entirely wanting in the artificial mixtures.—C. F. CHANDLER, Professor of Analytical and Applied Chemistry."

LEAD MINING IN FLINTSHIRE.

SIR,—Will it pay? Many, I feel assured, ask themselves this question; and too many, I fear, judging from the ill-success that has of late characterised mining for lead in this county, say No. Failure after failure has of late been chronicled; mines, commenced under seemingly the brightest auspices after a short trial have been abandoned; districts once replete with mining life and activity now silent and steeped in poverty; scarcely anything doing in any part of the county; so it is not to be wondered at that a question of such import to the mining interest generally should be answered so adversely.

In pursuing the enquiry, let us go back (say) 30 years. Then we find a great number of mines flourishing. With the Talargoch were the Trelogan, Holway, Milwr, Halkyn, Hendre, the Mold, and other mines, each making its thousands and tens of thousands of pounds in profits annually; but after a time one after the other having been exhausted, was abandoned, so that now few remain as representatives of the rich mines of that period.

Allured by the extraordinary richness of the lead ore deposits, capitalists have eagerly sought for investments, and to them two courses have been open—*i.e.*, either to resuscitate the abandoned concerns before referred to, or to open out new ones in unexplored districts. On the one side, with a heavy preliminary outlay in the purchase and erection of pumping machinery, absorbing in most cases nearly all the capital laid down, has been presented the too often hollow attractions of working a mine of historic repute, one from which thousands of tons of ore had been extracted from above a certain level; and the argument on the part of the advocates of such investments almost invariably has been that corresponding wealth could be obtained, through working the unexplored depths below, ignoring the suspicious fact that the mine had been abandoned by parties who, of all others, were the most likely, were there sufficient inducement, to lay down more money to further develope it. On the other side, by going into unexplored districts, with a small capital, the chance has been offered of discovering mines equal to any of those of the past, from which the whole of the wealth the lodes could yield could be obtained, not only that obtained by expensive drainage, as in the former case, but also that obtained without it; for let it be remembered that nearly all of the celebrated mines of the county have yielded the bulk of their profits from above the water line, without the intervention of pumping machinery. In this case no preliminary outlay in draining would be required. All the capital could be expended in laying open ground—the best application of mining capital—and if eventually pumping power should be required, it could be supplied out of profits.

Notwithstanding the superior attractions of investments of the latter class, and although nearly every parish in the mining districts presents the spectacle of large tracts intact of highly mineralised ground awaiting explorers, in positions, geologically speaking, which cannot be excelled, containing indications of lodes which, in most cases, trifling sums would develope; yet, through some strange fatuity, they have been passed headlessly by by investors, who, on the contrary, have rushed headlong into those, to me, unaccountably attractive schemes, the resuscitation of abandoned concerns, and to such an extent has capital been applied to pumping in them that almost everything that has been done towards developing the mineral wealth of this county of late years might be appropriately summarised in the word "draining." The result has been eminently unsatisfactory. Scarcely one of this class of speculations has done well. One after the other has been wound-up, the fact being patent in too many cases that the mine had been exhausted of all profit-giving ore, and that it had not been abandoned by its former proprietors without good cause.

The miserable state to which mining has been reduced is attributable almost entirely to this misapplication of capital. *Lead mining never will pay so long as operations are confined to old mines.* I would recommend, therefore, that such should be comparatively eschewed for the future, and that the miners of the present day should, like their ancestors, boldly go into fresh tracts of country to discover lodes for themselves, feeling assured, if this recommendation be followed, that no long time would elapse before mining presented a different spectacle to what it does now, and before all would admit that lead mining in Flintshire would pay.

In my strictures upon the re-opening of old mines, I do not say that under no circumstances would I re-open an old mine, but I would not unless I could work it under circumstances different from those which existed when it was abandoned; through the medium of a cheap day or adit level, for instance, which would in a great measure eliminate the expense of draining; or unless I had power, and was prepared to work simultaneously every mine in the vicinity as far as the drainage through expensive means extended.

A FLINTSHIRE MINER.

THE CARDIGANSHIRE MINES.

SIR,—It is always a pleasure to be enabled to forward you a good account of what is being done; and I have no doubt those interested in mining will derive a satisfaction in knowing that the mines generally throughout this district are looking well, by far the greatest part of them being placed in the dividend paying list. This healthy state of affairs has called the attention of men of capital and business to the old mines, which in former times realised great fortunes to the parties who worked them, and we may expect in the course of a few days to see "two great clusters of mines," each being worked by most influential parties, started to work. Of their having great and lasting success there can be no earthly reason to doubt, and as soon as they have fairly got to work I will give your readers a full and particular account of each of them. It is also pleasing to find that smaller mines are being taken up by men of influence—for instance, the Blaen Cae Nant, a little to the north of the great Frongoch Mine, was worked by a few poor miners in the neighbourhood, who discovered a long course of lead ore, from which good returns and profits can be made. After having done so, they met with some gentlemen who purchased it from them, and they have made a very handsome thing out of it. Again, a little to the north of Blaen Cae Nant a mine called Gyfron was taken by a few poor miners, who have some excellent ore in their grant already discovered. I hear they are likely to meet with a purchaser for this also; I hope they may do so, for wherever we get the poor miner to invest his hard-earned wages, it is always to be hoped he may be amply rewarded. That the sett is really good I can answer for. We want steady progress, and this we shall have, for the mines will speak for themselves.

Goginan, Aberystwith, March 24. ABSALOM FRANCIS.

THE DEEP MINES OF CORNWALL AND DEVON.

SIR,—Deep mines are too highly taxed, in the shape of dues or royalties. Formerly large deposits of tin and copper were to be found on or near the surface, but not so at present. To work mines in the present day, with few exceptions, cannot be done without a large outlay of capital, and time required to develope the same. When mines become deep they also become very expensive to work. Breakages constantly occur in deep mines, frequently owing to the smallness of the pumps or pitwork. Two remarkable instances have recently occurred in two of the largest copper and tin mines in Cornwall, causing a drop in the market value of their shares to the extent of many thousand pounds in each mine. The value of mining property much depends upon the quality or percentage of the minerals, and the extent or largeness of the veins or lodes. For example, some veins or lodes are composed of two-thirds or three-quarters of quartz, killas, elvan, porphyry, capel, mundic, and sometimes granite, but should a lode be found to

contain little or nothing but ore from wall to wall, let the vein be 3, 10, or 15 ft. wide, then the value of the lode is in proportion—from 50*l.* to 500*l.* per fathom.

But few mines are at present being discovered in Great Britain, from various causes—in the first place, the spirit of enterprise has departed to a great extent from our shores, and partly from the inhabitants acting the part of the Medes and Persians of old. The unalterable principle may have done formerly, but not in the present generation.

Mountainous districts have the advantage over flat or low lands, or localities. In all hilly or mountain countries rivers abound, and mines can be worked by water instead of steam-power; the saving in the cost is not only a few hundreds, but thousands a-year. If Great Britain is to maintain the prestige of past generations enterprise must not be stifled, but encouraged, or there is an end to our greatness as a mineral country in a few years. Put a stop to the staple article of a country and adversity will quickly follow. A. BENNETT.

March 22.

THE FUTURE OF CORNISH MINING.

SIR,—I shall not on the present occasion commit the fault of overrating my powers, by attempting to discuss (with the prowess of a Professor) points which can be only properly appreciated by those well acquainted with the neighbourhood; but if through me the voice of wisdom, resulting from long experience, reaches those interested, or from one who feels a deep interest in the success of North Cornwall, and assisting with the best of my ability those about embarking their capital in the immediate neighbourhood pointed out by Mr. F. Evans in his well and truthfully written letter, inserted in your valuable Journal of March 13, I shall be satisfied. I candidly confess I do not on the present occasion feel myself capable of replying to the letter with that degree of spirit it deserves, leaving it to more able hands than mine; but I wish to say a few words in appreciating the advantages North Cornwall possesses, and the delight at the prospect of its achieving distinction as a mining neighbourhood, and its being aroused from its lethargy by the remarks openly and truthfully conveyed by Mr. F. Evans. It is needless to add that for many years, even almost from childhood, I have carefully studied the various metallic veins in the neighbourhood spoken of; in fact, many a hard day's work I have done there, and during which time I had an excellent opportunity of forming an opinion.

I recollect well when a boy, from Pengenna Mine, west of Treburget, old Capt. Malichi and Capt. Peters sending off 6 tons of gossan to Truro, and selling it for 50*l.* per ton—no small price for stuff (to the ignorant) seemingly worthless; this mine, I regret to say, was only scratched about the surface, as others, unfortunately, were in the neighbourhood, and therefore cried down. At Old Trewether, I recollect the widow of Capt. Glanville informing me that, at her husband's death, she had 4 tons of regulus of antimony on hand, which she sold for 80*l.* per ton. Lord Fortescue received, in the course of two years, 18,000*l.* for royalty alone from this celebrated mine.

Mr. F. Evans says near the coast rich deposits of ore have been found. The late Capt. W. Verran produced ore at Wheal Samson which by assay made upwards of 700 ozs. of pure silver to the ton of ore, and I have frequently heard him express his valuable opinion as regards the merits of the neighbourhood as a mining one, and in which I coincided. As your correspondent remarks, the only thing wanted is a Don Pedro, a Devon Consols, or a Van to have a rush of capitalists, but soon, I believe, to use a mining phrase, North Cornwall will be tested in the "buddle" of experience, when success and truth will be found at the head, and the glittering waste of distrust, ignorance, and mismanagement will be at the foot, or be carried down on the stream of mishaps, for where success is physically impossible a good agent will advise when to stop, and make a good retreat with the less loss to the shareholders; and, like Xenophon's skill in leading home the 10,000, would win more admiration than the rapid successes of Cambyses in Egypt. I could point out with confidence many good setts in North Cornwall that would pay well, if skilfully worked, and I deem it only honest and fair, as an old miner, to offer a word of advice and encouragement to those wishful of exploring the hidden treasures of this sadly neglected neighbourhood, through want of confidence, and, doubtless, want of railway communication for the transit of ore and materials, as carriage was a serious item some years since.

Capt. R. H. Verran, in a letter to me (when in the neighbourhood a few weeks since), wished me to inspect a copper lode near Port Isaac, a portion of the Old Trewether Company's ground during his management, in 1854. I regretted that business prevented me from doing so. However, he says that Wheal Thomas copper lode was the most valuable portion of the company's property, and challenged Cornwall or Devon to produce a finer lode for making ore in depth. He also added, that "Practically the extensive setts of Old Trewether Company were undeveloped, and if capital were subscribed I believe, notwithstanding all the vicissitudes and disappointments that were encountered in the last working, that with skill this celebrated piece of mineral ground would eventually turn out to be remunerative."

I do hope that it will not be long with such a field of enterprise as North Cornwall, before it is operated on with vigour, now left all but untouched, while we read of foreign adventures, of almost every shade of uncertainty, tempting people to hazard abroad what might be applied near home with far greater chance of success, for there is, as F. Evans observes, undoubted proofs of the presence of extensive and various mineral wealth, wanting only enterprise and judgment to develope properly, to ensure a rich return to capitalists; and it is to be hoped that such a source of highly productive speculation will not be left much longer unnoticed.

I heartily wish other pens more able than mine would recall the attention of capitalists to North Cornwall, and that the opinions of mine agents be conscientiously given. Alas! in such a body of men how many gaps are annually made, and the hearts which once throbbed so anxiously for the success of sound legitimate mining now throb no more. But the onus lies with us, by imitating their perseverance and their wisdom, to achieve such success in North Cornwall, as in the West, as shall raise to the honest miner's fame a tribute more enduring than sculptured urn or monumental marble. AARON EDE.

Mold, March 23.

WEST VAN MINE.

SIR,—I am not surprised to see in last week's Journal a reply to my letter in reference to this mine; nevertheless, I positively assert that the West Van was formerly called Penclyn; and that it joins the Van is no mistake on my part, therefore, I have nothing to relinquish. If any person wishes to obtain further information respecting the West Van, I beg to refer them to the captain of the mine, who resides at Llanidloes; or of Mr. L. Howell, Bagillt, one of the directors of the company.—*March* 23. J. LEAN.

GOLD IN BRITISH CAFFRARIA.

SIR,—Through the medium of your valuable Journal I wish to inform the merchants of this country and Africa what I am sure is a fact—that gold is to be found, and that in paying quantities, in British Caffraria. I have been through it all, and have since been in Australia the last ten years, working as a digger, both in the Melbourne and Sydney diggings, and I repeat that I am quite certain that Caffraria, or that part of South Africa, will ultimately, and at no very distant day, be the next country that will be benefited by the discovery of the precious metal, for I need not remind you that if gold had not been found in Australia it would never have been what it is—one of the finest of our British possessions. So I think that it is a great pity so fine a country should be lying waste for the want of a little enterprise, for the Cape Government seem to be like the Chinese—to have a great antipathy against anything new, although it would be for their own good. ROBERT W. LATTA.

55, *Dorset-street, Glasgow.*

[For remainder of Original Correspondence, see this day's Supplement.]

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

STRAY PARK.—I quite agree with "One Who Waits," in his remarks, for I, too, have waited some years, hoping on, and many times during that time have wondered that out-shareholders have not demanded more frequent reports of their property. I had the mine inspected before purchasing the shares I now hold, which cost nearly 40*l.* each, and the report was so favourable that it was expected it would soon pay dividends, but up to the present moment call after call is made. I hear from the mine twice each quarter of the year—once to say a meeting is to take place, the other to say a call is made, and this has been the state of things ever since I became a part proprietor in the property. The reports when to hand are of the most meagre description, but have generally led us to believe there was plenty of tin, but the low price in the market for the article would not leave a profit when returned. However, the times are changed, as is the price of tin, and I think now we ought to have a report at least once a fortnight in the *Mining Journal*. I believe, with good management, we not only ought to have done with calls, but be making large profits, and if this is not done it will be a matter for serious consideration whether fresh management would not bring better results to another—ONE WHO WAITS.

At BRONFLYD they have another most important discovery; the north lode in the 73, the deepest part of the mine, is yielding fully 3 tons of lead ore per fathom.

At TY-GWYN MINE, just outside the Dolwen boundary, and on the north lode of the latter-named mine, Messrs. John Taylor and Sons are sinking a shaft on as promising a lode as ever seen, yielding a large quantity of ore in a matrix of precisely the same character as that of Frongoch, also their property. This Dolwen district is situate in a fine valley, between two steep mountains, rising respectively on the north and on the south, through which the lodes pass in an oblique direction, varying from 10° to 30° north of east. It possesses every local advantage—abundant water-power from the My-nach and Rhyddnant rivers, with a lake at the head of the latter capable of supplying the machinery of a dozen large mines, which streams unite, and empty themselves into the Rheidol, and form the never-failing and well-known cataract at Devil's Bridge, distant west about two miles. This lode at Ty-gwyn is the lode referred to in the 4th paragraph of the report appended to the Dolwen prospectus, and its successful opening, and the importance of the resulting discovery, will probably induce the Dolwen executive to put out a cross-cut north simultaneously with the present extension of the deep adit eastward. It is the generally received opinion that this district is destined to open out a fine run of lead mines, and with the prestige of astounding success which has for so many years attended the Frongoch lode of the Lisburne Mines, from which it is the direct run, and being situate in the same meridian as Cwmystwith, there seems to be very good grounds for this anticipation.

OKEL TOR.—Several large vughs or fissures have lately been cut on the course of the large south lode, in the drivage in the 65 fathom level east, which have tended to the discovery of a considerable quantity of copper ore, deposited in large veins, and disseminated in a soft quartzose matrix. These fissures sometimes contain carbonic acid gas, and there was an abundance on this occasion, although they are so large, for they are capable of holding four to six men in each. The reflection from the numerous variety of crystals of mundic, copper ore, quartz, &c., when first intersected, was remarkable, but these structures fell easily before the pick, and some large courses of ore are now, apparently, making off from them.

STEEL PENS.—The pens manufactured by Messrs. MACNIVEN and CAMERON, of Edinburgh, named the Waverley, the Owl, and the Pickwick respectively, while they write very freely, possess a great advantage in holding a large supply of ink without any tendency to blot. They have also many of the good qualities of a well-mended quill—especially the Waverley—and will even be admired by those accustomed to that kind of pen.

COLLIERY PUMPING.

Mr. E. B. MARTEN, C.E., of Stourbridge, and Mr. WM. WALLER, C.E., of Newcastle-on-Tyne, have each given attention to this subject. The first read a paper on "The Drainage of the South Staffordshire Coal Field, in Relation to Mining Operations," at the close of 1865, before the Dudley and Midland Geological Society; and the other read a paper on "Pumping Water," at a meeting of the North of England Institute of Mining Engineers in 1867.

In South Staffordshire the greatest difficulty has always been the want of that combined effort necessary among the various owners of surface and mines affected, and the need of some ready means of adjusting the change in proportion as each proprietor is benefited. In too many cases the whole burden has fallen on a few, who could not bring their mineral wealth to bear without submitting to it. There has also been trouble as to maintaining the water courses upon the property of others, so as to carry the water away, and secure it from returning, to be re-pumped; but in this particular the canal companies, with their parliamentary powers and direct interest in keeping their canals water-tight, give opportune assistance. The engineering and mechanical difficulties have been also numerous. In most cases the quantity of water to be raised was only matter of vague estimate, or a large pond had to be pumped out before the regular "come" was ascertained, so that much larger engines had to be erected than have now been found necessary. Nevertheless, the engines of South Staffordshire would compare well with those of most other coal fields, as the cost of raising each ton of water is about the same there as elsewhere. The quantity of water raised by pumps or barrels from the mines of South Staffordshire is an average of about 50,000,000 gallons per day of 24 hours. The weight of this daily quantity is about 220,000 tons, or nearly ten times the weight of the coal raised in the same time. It requires about 5000-horse power to lift it from the various depths, and employes a plant representing a capital of about 500,000*l.* sterling, and involves an annual expenditure, including interest of capital, of 125,000*l.*, or about 3¼d. per ton of coal gotten in the district, estimating the total get at 8,000,000 tons. As the total get has risen to more than 10,000,000 tons, the estimate is, perhaps, slightly over the actual present cost, for the increase in pumping power has been scarcely proportionate in cost to the increase in coal obtained. The figures are, however, complete enough to enable the reader to form a nearly accurate estimate of the cost at which the colliery proprietors of South Staffordshire are at this hour getting rid of the water by which their mining operations are impeded. This 50,000,000 gallons is equal to nearly half the daily rain-fall, and it would make a river as large as the Tame, or fill an ordinary canal 12 miles long. Where does this come from, where does it go to, and could the quantity be lessened or the cost reduced?

The drainage area of the field is 125 square miles, and, as it is situated on some of the highest table land in England, little or no water is brought on to its surface by any natural stream or artificial means, except the comparatively small quantity distributed by the water companies, who derive their source of supply from a distance. The field is naturally divided into two distinct portions by the ridge of hills sketching from Rowley through Dudley to Sedgley and Wolverhampton. The amount of rain-fall in South Staffordshire is less than in many places nearer the coast, and has not averaged for 18 months more than 22 inches per annum. At this rate, the whole quantity falling in the 125 miles of the coal field would not exceed 108,000,000 gallons per day of 24 hours, and, if to this added about 4,000,000 gallons of the water delivered by the water companies, it brings the total amount which has to be accounted for as coming into the district to 112,000,000 gallons per day. The streams flowing off the district are estimated to discharge, on the average, about 52,000,000 gallons, which, together with about 13,000,000 gallons diverted into canals, would amount to 65,000,000 gallons, being only 47,000,000 gallons for evaporation and percolation, which is less than the latter alone, as proved by the quantity pumped—50,000,000—and leads to the conjecture that the great quantity of water found in the mines is due to something else besides the rain-fall. It is ascertained that of the 50,000,000 gallons pumped, about 37,000,000 flow into the canals, and the remaining 13,000,000 into the natural water channels. The canals, therefore, receive the great bulk of what is pumped, as well as the surface flow from a drainage area of 25 miles. If it be taken for granted that all the water which finds its way into the canals is kept there, or carried off the district, it increases the difficulty of accounting for the quantity of water found in the mines, because then the quantity pumped would soon empty the mines altogether.

The great quantity of the water found in the mines in South Staffordshire can only be accounted for on the theory that very much of that raised finds its way back to be re-pumped. The whole surface of the field is more or less perforated by pits, or dislocated by mining operations, or divided into catch-water pits by the deposit of spoil banks, in which the water has to accumulate to a considerable depth before it can be run off, as the water-courses have to be maintained at the old level, although the surrounding ground is depressed. In many places swags may be found filled with water, which has no means of escape, except by percolation through the bottom.

At one time the mines of South Staffordshire were so rich in mineral, and the slack made in getting the coal was so plentiful before the demand arose from the working of engines for other industrial operations, the cost of pumping was not, perhaps, felt burdensome, but each year the quantity of water to be raised has increased, until there are more engines at work than ever; and the present cost of pumping must form an appreciable addition to the cost of the minerals. It should be remembered that this estimated 3¼d., or whatever sum the pumping costs per ton, is an addition to the royalty, and, as such, it forms a large percentage on the average royalty of the district.

If the pumping of South Staffordshire could be conducted on one complete system it could, probably, be done at not more than a-third of its present cost. As the time will soon come when fuel must be sought for in a more extended area in the district under discussion than that now opened up, the leading proprietors of the mines there would do well to determine by combined efforts to bring down the cost of freeing their property from this one obstacle at the minimum of cost. There is reason to fear that it is only under parliamentary powers that the most economical system of drainage can be effectually carried out, or the cost fairly divided.

Some time during 1860 an attempt was made to introduce a Bill in Parliament to drain a certain portion of the coal field around the mouth of the Tyne, but it is believed to have fallen through on the death of the chief promotor. In the Newcastle-on-Tyne district the proportion of water is, perhaps, 15 times the weight of coal raised.

The substance of Mr. MARTEN'S paper was brought under the notice of the British Association at their last meeting, in Birmingham. And Mr. WALLER, in offering his views to answer a question of great importance to every colliery owner, quotes from it. The question supposed is—What should be the cost of raising 1000 gallons of water 100 ft.? Assuming that 128 yards, or 384 ft., may be taken as the average depth of the South Staffordshire pits, and that that, therefore, is the average of the lifts, the quantity raised by each being equal, pumping on the South Staffordshire coal field costs ·343d. per 1000 gallons raised 100 ft.; or, in other words, per million foot pounds. In endeavouring to establish a comparison between the South Staffordshire and the Northumberland and Durham district, Mr. WALLER had not at command the same details to guide him that he had quoted in respect of South Staffordshire, except that from observation he thinks it would not be below the ·343d. per million foot pounds. But as Mr. MARTEN had understood that 15 times more water was lifted than coal in the Newcastle field, and as the coal lifted in 1865 was 25,000,000 tons, there was, therefore, something like 84,000,000,000 gallons to raise (say) the same height—384 feet, which at the same rate would cost 459,200*l.* This, Mr. WALLER correctly remarks, sufficiently shows the importance of the matter to the Newcastle district.

Side by side with this data Mr. WALLER places very valuable results obtained under his own observation in water works for the supply of towns, where generally the work is more economically executed. Mr. WALLER'S conclusions are that the cost of coal for lifting 1000 gallons 100 ft. high, or a million foot pounds, need never exceed one-eighth of a penny, where Cornish engines of the best make are employed, and that the total expense might be within one farthing, instead of the half-penny and three farthings, which are very often found to be the cost. The larger the amount of duty performed the less Mr. WALLER shows is the cost. Hence associations formed for draining large districts should on that account alone be able to work more economically than the smaller efforts of each colliery proprietor.

The conclusions of Mr. MARTEN and Mr. WALLER come with especial force at the present moment, when not only has the question of the most economical drainage of the district come disagreeably to the front in South Staffordshire, but is just now occupying the minds of some of the first men in the Newcastle district.

THE COAL TRADE OF NEW SOUTH WALES.

Although reference has from time to time been made to the existence of great facilities for the shipment of coals at Newcastle, New South Wales, probably few are aware of the extensive nature of the arrangements, or of the power of the colonial collieries to meet any reasonable demand. The value of the knowledge, however, is apparent, since the advantage of being able to rely upon an ample supply of steam fuel for the return voyage could frequently be taken by utilising an extra quantity of space for the carriage of cargo. In the Newcastle "Business Directory" for 1869 (published by Messrs. R. C. KNAGGS and Co., of Hunter-street, Newcastle), some extremely useful information upon the subject is given. Thanks to the International and Intercolonial Exhibition, the people of New South Wales have had an opportunity of exhibiting to the world their mineral wealth in a way that has drawn forth the approval of those most competent to judge, and have thus gained an importance in the eyes of commercial men, which must lead to their increased prosperity. With regard to the geological age of the coal, it is now generally acknowledged to belong to the true carboniferous formations, no less an authority than Prof. WARINGTON SMYTH writing:—

"On arriving at the southern latitude of Sydney, in Australia, we meet again a great development of the carboniferous system, exercising already a considerable influence on the fortunes of our rapidly growing colonies. Since the systematic description of the coal-bearing beds of this region by Count STRZELECKI, in 1845, numerous observations upon them have been contributed by Mr. BEETE JUKES, the Rev. W. B. CLARKE, Mr. SELWYN, and Mr. W. KEENE, which leave no doubt as to the palæozic character of the lower part of a great conformable series of strata."

And the evidence of the commercial value of the deposits is even more conclusive than that of their geological age.

In the New South Wales coal district Mr. KEENE, the Government Examiner of Coal Fields, has recognised 11 distinct seams which are more or less worked. Several of these are from 4 to 6 feet thick. The Wallsend seam, worked between Minmi and Newcastle, is 9 ft. of good coal; that of the Agricultural Company's Bore-Hole Colliery, is 9 ft.; and one which crops out near Stroud, on the same Company's land, is as much as 30 ft., including sundry partings of shale and fire-clay. On the Hunter River for a distance of 15 miles up from Newcastle several considerable collieries are worked, and even 30 miles further north, at Rix's Creek, near Singleton, a good seam has been worked upon. South of Sydney about 60 miles, at Bellambi and Wollongong, shipments are made of the coal obtained from workings on the outcrops of seams of very regular persistence in thickness. Various descriptions of coal—smiths', household, and gas—are obtained from different pits, and a large amount of steam coal of very serviceable quality being regularly supplied to steam-going vessels. Several beds of bituminous shale and Cannel have recently attracted much attention as sources of rock oil. Imitating the mother country, not only in the names of its seams and mining localities, New South Wales has opened out a considerable foreign trade, and shipments of coal have long been made to China, India, and even to the ports of California.

No petroleum springs have yet been found, but New South Wales is, perhaps, richer than any other district in the possession of the description of coal from which the oil is distilled. At America Creek, near Wollongong, at Hartley Vale and West Hartley, and Bowenfells, the oil coal is found, and large establishments are at work producing kerosene oil, lubricating oil, paraffin, and other valuable products which can be obtained from the different petroleum coals worked. At Greta, near Branxton, the Examiner of Coal Fields has lately laid open different petroleum coals worked. We may also expect soon to see a successful enterprise of the like kind in our own district, for the Examiner of Coal Fields has lately laid open at Greta, near Branxton, a remarkable seam of more than 20 ft. in thickness, in which there are seven different varieties of coal, divided only by thin partings, and amongst these there is a foot in thickness of rich petroleum coal, not distinguishable from the Hartley oil coal, and there overlies it a band of coal, which is bright and rich as pitch. In opening the seam Mr. KEENE has placed on the ground heaps of samples showing the different kinds of coal, and the slightest inspection satisfies the observer of the richness and quality of the seam. It is understood that this seam is forthwith to be worked by a company in course of formation at Maitland.

The collieries of New South Wales are worked on a scale comparable to the first-class collieries of England—their locomotives taking the coal trains from the pit's mouth to the town wharves, and some of them are equal to the extraction and shipment of 1000 tons a day. The total quantity of coal raised in the last year is expected to amount to about 500,000 tons, a great contrast to the 113,000 tons shipped in 1858, and there is every reason to expect that the increase in the next 10 years will be in like proportion—indeed, the regular trade in coal continually improves; additional staiths for loading are in course of erection to keep pace with the increasing demand for facilities of shipment, and ships of large tonnage can enter and load in the port without delay. With regard to the facilities for shipping coal, Messrs. KNAGGS and Co. state that there are at present nine collieries in full work within a short distance of the town, producing at present from 15,000 to 20,000 tons per week.

THE AUSTRALIAN AGRICULTURAL COMPANY have five large shoots, and can easily load vessels under them at the rate of 200 tons per day from each shoot. They can produce and load if required 1000 to 1200 tons per day. They also load their coal, when requisite, at the Government steam cranes. Vessels loading from this company's shoots can discharge their ballast on to the company's ballast wharf, lying safely alongside at a draft of 11 ft. 6 in. to 12 feet. They load vessels under their shoots to a draft of 14 ft. 6 inches.

NEWCASTLE WALLSEND COAL COMPANY.—The company possesses 9000 acres, all coal land. The pits are situated 8¼ miles from Newcastle. They have three pits in working order, and can supply at present upwards of 1000 tons of coal per day. Their line joins the Great Northern, a short distance past the township of Waratah, upon which it is conveyed to Newcastle, and shipped at the Government steam cranes, Queen's Wharf.

MINMI COAL MINES.—The pits are situated at Minmi, about 16 miles from Newcastle. The area of coal land is about 3000 acres. The private railway from the coal mines effects a junction with the Great Northern Railway, which enables the proprietors to ship at the Government cranes, Newcastle. They also possess the Drop Ship moored in North Harbour, Newcastle, where vessels of the largest tonnage are loaded; and have four staiths at Port Hexham, Hunter River, situate about 10 miles from Newcastle, at which place a large quantity of coal is shipped, and vessels drawing 12 feet can load.

THE WARATAH COAL COMPANY.—This company has a private railway and shipping staiths at Bullock Island, and are able to ship 1000 to 1200 tons per diem, and are also able to ship coals at the Government cranes.

ANVIL CREEK COLLIERY, situate 33 miles from Newcastle, in close proximity to the Great Northern Railway, upon which its coal is conveyed to Newcastle and shipped at the Government cranes, Queen's Wharf. The coal raised at this colliery resembles Cannel coal.

NEW SOUTH WALES CO-OPERATIVE COAL COMPANY.—This company possesses 15000 acres, all coal land. They have one large tunnel, which can supply upwards of 500 tons of coal per day, and is situate 8 miles from Newcastle. The coal seam is 9 ft. 6 in. thick. Their line of railway joins that of the Wallsend Coal Company, upon which their coal is conveyed to the Government cranes, Newcastle, for shipment.

BURWOOD COLLIERY, situate at Burwood, 5 miles from the wharf at Newcastle, with which it is connected by a private railway. The colliery estate, upon which six seams of coal have been proved, contains upwards of 3000 acres of coal land, and the colliery can supply upwards of 500 tons of coal per day. The owner of this estate is the Hon. JAMES MITCHELL, Sydney.

NEW LAMBTON COLLIERY.—This coal mine is situate about 4½ miles from Newcastle, with which it is connected by railway. It comprises about 1400 acres. The seams are the same as Lambton, and immediately adjoin the workings at that place. The coal is shipped at the Government cranes. Messrs. JAMES and ALEXANDER BROWN are the proprietors of this coal field.

As a manual for men of business visiting the colony, the "Newcastle Business Directory and Hunter River District Almanac" (from which the information above given is collected) will prove invaluable to merchants or others, including a nautical ephemeris, declination of fixed

stars, chart of the Harbour of Newcastle, &c.—in fact, it is a book which no one trading within reach of Australia should be without.

ON THE COAL COST OF STEAM-POWER.

To do justice to Mr. CRADDOCK and his invention, we must go back to 1840, or, at least, to the time his invention was practically set to work before the public, and its results made known through the press. This is found to commence in 1842. At that time those who were then old enough to be able, by practical experience and scientific knowledge, to understand the then state of things, well know, it was a settled conviction, that so great was the amount of heat per horse-power which passed through the engine per hour that to supplement the injection-condenser by the atmospheric surface-condenser was considered beyond the range of practical possibility, as the surface-condenser, in water, had then been tried, and practically given up; and by the use of air the surface-condenser was said to be rendered 800 times more impossible than by its use in water. To raise the pressure of the steam, to extend expansion in the crank-engine, the Bolton and Watt practice had proved, was to choke the condenser with steam and waste fuel, and then, when the locomotive pressure in the non-condensing-engine was only from 50 to 60 lbs., the absurdity of using 100 lbs. pressure in the condensing-engine was considered both visionary and dangerous. To these, and the following points, the reader will find ample detail reference given in the inventor's six letters, found in the Journals of 1867, at pages 370 and 426, and 1869 pages 54, 74, and 107, and the letter that appears in this day's *Mining Journal*.

In those letters the reader is referred to Mr. WOODS' paper, read before the Institution of Civil Engineers, in 1844, and published by WEAL. Mr. WOODS, after stating that then, in the best examples, the non-condensing-engine required 16 lbs. of coal, the Bolton and Watt condensing-engine 8 lbs. of coal, and the locomotive 8 lbs. of coke per horse-power per hour, he adds these figures indicate the importance of keeping pace with the then latest improvements of the day. In 1842 the steam is condensed by the atmosphere, the vacuum is got to the extent of 16 in. of mercury, the steam water is retained, and 1 gallon of water per day per horse-power demonstratively proved as equal to a continuous supply of steam-power, to any extent and for any length of time. In 1843, still condensing by the atmosphere, we have added to the above a vacuum back on the piston equal to between 9 and 10 lbs., we have the coal reduced to less than 3 lbs. per horse-power per hour, and we have the condensing-engine reduced to a simple direct-acting engine, making from 60 to 70 revolutions, and capable of equally high speed per minute as the locomotive; we have the double-cylinder engine so applied, and we have its cranks placed at various angles, including right-angles; we have the loss of power thus measured and recorded, and we have the inventor clearly and practically pointing out how such cylinders might be extended to four; and by intervening steam-chests the steam was to be superheated by the gases on their way from the boiler to the chimney, each cylinder also becoming a separate engine, with its crank at varying angles with the others. In his pamphlet of 1844 we have his double-cylinder engine, as it were, turned inside out, by eight indicator figures taken off the engine, showing friction of combined engine, condenser, and air-pump, friction of engine, that added by the condenser, and that of all the parts and the full work; and two indicator figures taken off the double-acting air-pump, one from the bottom and the other from the top. In 1845 we have his discovery of the mystery which surrounded the use of steam expansively; and in 1846 we have his lectures, and his embodiment of his views and practice in the specification of his 1846 patent; and in 1847 is published to the world a clear digest of the whole subject in its scientific, mechanical, and commercial aspects.

In 1848 we find that the first engine he sold was only a four-horse one. In testing it in threshing wheat, with the portable-engine of that day, it threshed as much wheat with 1 lb. of coal as the portable did with 17 lbs. of coal. This engine, at the time, was condensing by the atmosphere, and with the worst condenser he ever set to work. This engine had 24 square feet of heating surface in the boiler below the water-line, and 14 square feet of superheating surface above the water-line per horse-power. In 1849, in an experiment with a 20-horse engine and his condenser in water, he proves the reduction of water per day is from 600 gallons per horse-power per day, as stated by HALL as required in the use of his condenser to 80 gallons, with steam of 100 lbs. pressure, cut off at one-sixth of the stroke, and the engine making 100 revolutions per minute. The surface in the condenser is reduced from 20 square feet per horse-power, HALL'S standard of surface, to 3 square feet. In 1852, in addition to superheating and double cylinders, he supplies a perfect steam case, a connecting-rod, by which the direct acting engine is rendered as compact as the oscillating, or trunk-engine, and still he gets a connecting-rod over three times the length of the stroke. He also adapts his condenser to evaporation cooling, and cooling the water for injection, and presents various modifications of his boilers. In 1854 he makes an experiment upon his boiler, extending over several days, to ascertain the steam made per lb. of coal, and found it 12¼ lbs. of steam for each 1 lb. of coal burnt in the furnace. By this engine he first reduced the coal from 16 lbs., as compared with the previous non-condensing engine that drove the works, to 1 lb. for equal power; and he then, in 1855, by one of his boilers with large grates and fire-doors, supplanted the use of coal altogether, by rendering the sawdust (which previously cost the proprietor 1*l*. per week to remove from the premises) the only fuel required to do the work of the mill, so that not only was all the coal saved, but 1*l*. per week in addition. For this same person he made several engines, among them one of the same diameter of cylinder and power (but with a 4-ft. stroke) as that in the Thetis, but the Thetis's engine had but a 2 ft. 6 in. stroke. To a certain extent both these engines were made from the inventor's patterns. In these two engines the ports, passages, and valves were alike, and both engines were intended to work with the cranks at any angle respectively of each other, and, of course, the same difficulty was found with both engines, in so far as ports, passages, and valves were concerned, in timing the steam to the wants of the piston; but as the first engine was not started until those parts of the Thetis engine were made, the experience of the first engine was too late to prevent a like difficulty with the Thetis engine.

By the directions of the inventor, the first engine was readily made to work, as did the engine at the saw-mill, and, of course, the Thetis engine could as easily have been made to do so. But it being a steam-ship engine it was wanted to have power to move the ship at all points alike. This the inventor would, at little cost, have made it do, but circumstances we cannot enter into led to the course adopted, which was to substitute a pair of his double-cylinder engines in place of his single double-cylinder engine. In 1857 the inventor took a number of indicator figures off the first Thetis engine, with the coal weighed, and we find him in the *Engineer*, Dec. 4, 1857, page 418, answering "J.B." thus—"Whatever may be "J. B.'s" and other men's speculation on the subject, I know, as certainly as I write these lines, the engine and boiler are capable of working with 1 lb. of coal per horse-power per hour." On Nov. 20 following, we find Prof. RANKINE makes his experiment, and he finds the coal 1·018 lbs. per horse-power per hour, and he found the boiler produced 13·56 lbs. of steam for each 1 lb. of coal burnt in the furnace. Looking through this invention, we find it based upon a sound foundation, and we find the cause always more than equal to the effects claimed; we also find those effects so well attested, and so thoroughly demonstrated by 17 years' practice, and that the water, steam, and coal are either measured or weighed at the time the indicator figures are taken; and, also, we find those figures are always made by the same steam when the double cylinder is used, so that we doubt if any steam-engines, boilers, and condensers were ever in their results better authenticated. For instance, the inventor experiments on his boiler for days together, and finds 12¼ lbs. of steam per 1 lb. of coal, and the professor finds 13·56 lbs. of steam for 1 lb. of coal; when the size of the two boilers is taken into account, we see in the one experiment strong confirmative evidence of the other. The same is true of the coal per horse-power per hour, and, indeed, of all the other practical evidence here referred to, as obtained throughout the 17 years' practice. On referring to this day's letter, it is seen in that table the standard for the then marine engine is taken from a paper of Mr. JOHN SEAWARD'S, read in 1849 at the Institution of Civil Engineers, and, like Mr. WOOD'S, in 1844, it is so long after this invention had been well known as to render it unfair to the inventor as a comparison; but he, nevertheless, presents it as the standard of comparison. To put before the readers the means of judging of the grounds the inventor had in 1847 for the statement that the invention was equal to a saving of 20,000,000*l*. sterling per annum, it is in the first place necessary to say that among practical and well informed men it was not the pounds sterling that they disbelieved in, but the non-capability of this invention, or any other, to reduce the cost of steam-power to the point stated by the inventor in those tables. But it must, however, now be admitted that he has reduced the coal cost below what he gave in those tables, so that the pounds sterling is not now a debateable point; but to assist the reader to form his own calculations, he finds in the table referred to that on 500-horse power, for 14 days' steaming, a saving is effected equal to the value of 450 tons of coal. And in the letter in this day's Journal he gives his authority for setting the coal at 9*l*. per ton between England and Australia. Suppose, therefore, engines of the power of those in the Hercules, or of 8000-horse power, plying between England and Australia, and suppose the voyage to occupy 56 days, then, as the coal is set at 9*l*. per ton, and the coal saved upon that power and time is 28,800 tons, or equal in value to 259,200*l*. on each voyage—that is, taking the horse-power at 7 lbs. of coal per horse upon the Seaward standard, and 1 lb. per horse upon the inventor's; and in addition there is a gain from the diminished weight and bulk of machinery and boiler, and water in the boiler, &c. Enough, however, is said here to enable anyone to see how great must be the saving upon the whole steam power of the British Empire. Given the character, comprehensiveness, and value of the invention, it is easy to see how diverse interests, jealousy and prejudice have deprived the inventor of the aid of a BOLTON, and beset his path with every other possible obstacle.

SEPARATING THE ZINC FROM ARGENTIFEROUS ALLOYS OF LEAD.

Mr. H. ROUX, of Marseilles, has patented a new process for separating the zinc from the argentiferous alloys obtained in the separation of silver from argentiferous lead by means of zinc, and improvements in the furnaces employed for that purpose. This invention consists (when the argentiferous alloy has been obtained by Parkes' process in the separation of silver from lead by zinc) in submitting the said alloy to successive liquation processes, so as to remove therefrom the greater portion of the lead combined therewith. This product, broken up into small fragments and mixed with its own weight of litharge, is thrown on to the bed of a reverberatory furnace. The bed of the furnace rests upon two cast-iron plates, made to incline towards each other in the centre. It is formed of fire-bricks cemented together by a paste composed of fire-clay and powdered calcined bones, or it may be formed by placing on the plates a mixture of fire-clay and graphite. The before-mentioned alloy having been charged into the furnace it is covered with a small quantity of litharge, and it is heated to a dark red heat. The reactions then commence; one portion of the litharge is soon reduced by the zinc, which is transformed into oxide which remains floating in the molten mass, while the lead produced absorbs all the silver and is caused to run off through an outlet passage into a receptacle placed outside the furnace to receive it. As soon as the running off of the lead ceases the reaction is complete, and the aperture of the outlet passage is closed. The furnace is then well heated, so as to liquify perfectly the litharge, as also the oxide of zinc and all foreign matters, such as the oxides of copper, iron, and antimony, which dissolve. The outlet passage is then again opened, and the remaining quantity of lead is run off, the arrival of the litharge in the passage indicating that all the lead has been eliminated. The litharge is then allowed to flow off separately either on to the floor of the workshop or into boilers arranged to receive it. The rich lead is then subjected to the cupellation process, while the impure litharge is treated in the cupola furnace for separating the lead contained therein. In cases where the argentiferous alloy contains very large proportions of zinc it is advisable to increase the dose of litharge, in order that the latter may be present in sufficient proportion to perfectly dissolve the oxide of zinc, and to form a sufficiently liquid compound to allow the globules of lead to traverse it readily.

MANUFACTURE OF CAST AND WROUGHT IRON AND STEEL.

Messrs A. PONSARD and F. E. BOYENVAL, of Paris, have patented an invention which relates to a peculiar process and furnace for manufacturing cast and wrought iron and steel whereby the costly blast-furnaces hitherto employed are entirely dispensed with.

The peculiar furnace employed in carrying out this invention is constructed somewhat similar to a reverberatory furnace, with a double sloping hearth for the collection of the molten metal. The hearth is heated either by an ordinary fire-place or furnace, or by gas, in which latter case a Siemens', or other like apparatus well known to metallurgists, would be employed, the flame and products of combustion entering by suitable conducts at one end of the furnace, and passing off by other like conducts situate at the opposite end. Upon each of the sloping sides of the hearth rest the lower ends of a number of vertical fire-clay tubes or crucibles, without bottoms, such tubes entering at their upper ends with holes in the roof of the furnace, which roof is covered by a cast-iron plate, forming a platform, and being provided with moveable lids which fit over the mouths of the different springs leading down into the tubes. The ore, fluxes, and fuel are suitably fed into the several tubes from the platform or plate above referred to, and heat is then applied to the furnace, the flames circulating or playing round the exteriors of the several charged tubes, and effecting the fusion of the ore without coming into actual contact therewith, and may be of any quality, whilst the small amount of fuel contained inside the tubes along with the ore and flux, in order to effect the deoxidation of the ore and the carburation of the metal, should be of the best quality. It will thus be seen that two distinct kinds of fuel are employed—the ordinary fuel, for the purpose of fusion, and a superior fuel, of which only a small proportion is required inside the tubes or bottomless crucibles, hence a considerable economy is obtained over the ordinary system of blast-furnace. The molten cast-iron runs out of the bottoms of the vertical tubes and down the sloping sides of the hearth, and as fast as the contents of the tubes subside or descend fresh supplies of ore, fuel, and flux are added, thus rendering the process continuous. The molten metal is run off through a tapping hole in the side of the furnace, and the slag is removed through a separate opening from time to time as required.

In making cast-iron the ore, previously roasted and broken up into small fragments, is thrown into the vertical tubes, and the requisite quantity of flux added alternately, each charge of ore with a charge of small coal, or coke, or wood charcoal. The covers are placed over the tubes and the furnace started, when the molten cast-iron will be obtained as above described, and may be cast into pigs, or run direct into the foundry ladle.

In making wrought-iron the same apparatus is employed, and the wrought-iron is obtained direct from the ore. The ore employed should be first reduced to a metallic state, by subjecting it to an elevated temperature in a furnace in contact with the fuel. The ore thus reduced is introduced into the vertical fire-clay tubes, and the process continued as for the production of cast-iron, taking care, however, that no coal be mixed with the ore, which would in such case become carburated, the result being cast-iron or steel.

In making steel the process is the same as for cast or wrought iron, the tubes being charged with ore reduced to a metallic state, and mixed with a suitable proportion of crushed fragments of cast-iron.

EXTRACTION OF PRECIOUS METALS.—An improved method of working roasted gold and silver ores in pans and barrels by amalgamation has recently been patented by Mr. GUIDO KUSTEL, whose high reputation as a metallurgist is well known. Simple as this process is, it elevates pan and barrel amalgamation to a higher degree of importance. The main object of the process, which is applicable to ores from which only a low grade amalgam can be obtained (in consequence of the presence of iron, copper, lead, antimony, and arsenic), is to remove the base metal chlorides before the ore is subjected to amalgamation. For this purpose Mr. Kustel applies a very simple, old process—that of leaching. Most of the chlorides are soluable in hot water, and can be easily removed by lixiviation. An addition of some sulphuric acid is in many instances very useful, but cannot be administered if some lead should be present in the ore, in which case muriatic acid should be employed; generally, hot water is sufficient. The leaching is carried on as long as a reaction of dissolved metal is perceived in the leach. The ore so treated is then ready for amalgamation. To illustrate the effect of leaching, it may be stated that a charge of 300 lbs. of refractory ore from Idaho was equally divided after roasting, one of which was directly amalgamated, the other after leaching. The former amalgamation gave a retorted metal which melted into an untractable lump of iron, whilst the lixiviated portion yielded a silver bar ·897 fine. In both cases the amalgamation was done in the usual manner, under application of heat. The advantage of leaching the roasted ore before amalgamation consists in obtaining a higher percentage of silver; in saving a large proportion of quicksilver; in making the pan last several years longer; in saving the greater part of the copper; and in a shorter roasting, as there is no necessity for decomposing the chlorides before amalgamation by an increased heat. The expense, compared with the advantages, is a mere trifle—the heating of water for leaching. Even cold water will answer, although with a little less effect. Some ores, however, require to be treated first with cold water. It must be mentioned that, although the chloride of silver is not, like the base metal chlorides, soluable in water, some of it will, nevertheless, be carried out; but this occurs only at the first attack of the water, when the solution of the undecomposed salt and of the chlorides becomes so concentrated that a little silver chloride is dissolved on the Augustin principle. There is no difficulty practically, however, in preventing the escape of dissolved silver. Not all the copper contained in the ore is converted by the roasting into chloride of copper, there being also formed a sub-chloride which is not soluble in water; but this is easily decomposed in the pans, so that in this case a considerable amount of copper would be found in this amalgam. There are several ways of reducing the sub-chloride of copper, to a greater or less extent, according to circumstances.

MANUFACTURE OF SULPHURIC ACID.—Mr. T. KENYON, of Miles Platting, Manchester, has patented an improved process of manufacturing sulphuric acid. He takes the nitrous and sulphurous gases, and forces them through a solution of weak sulphuric acid, by means of atmospheric air, impelled by high-pressure steam, and as the gases rise from the weak sulphuric acid they are met by a spray of weak sulphuric acid, combined with air and high-pressure steam, thereby causing quicker condensation than by any other process, and these improvements may be employed either with or without the ordinary vitriol chambers.

MONSTER INDUCTION COIL.—Perhaps the most remarkable philosophical instrument manufactured during the past year is the monster induction coil just erected at the Royal Polytechnic Institution by Mr. ALFRED APPS, philosophical instrument maker, of the West Strand. On Tuesday evening this enormous machine was tested in the presence of a large number of scientific and other gentlemen interested in electrical science, Sir Charles Wheatstone, Capt. Galton, R.E., Mr. J. P. Gassiot, F.R.S., Profs. Miller and Morris, Dr. Browning, Messrs. Chandler Roberts and Carpenter (of the Royal Mint), &c., being among the visitors. An interesting lecture upon the coil was given by Prof. Pepper, in the course of which he stated that the dimensions of the instrument far exceeded anything of the kind that had previously been attempted. The coil is 5 ft. in length and 2 ft. in diameter. The core wires weigh 125 lbs., and these are covered with a primary coil composed of 2¼ miles of cotton-covered wire, and a secondary coil consisting of 150 miles of wire covered with silk. The power of the machine is equal to 33,560 British Association units. The condenser is divided into six parts, and tinfoil has been substituted for glass, by which means, with plates of 125 square feet, a charging surface of 1500 square feet is obtained. In the construction of the coil Mr. Apps has used 477 lbs. of vulcanite, and between the secondary coil and the outer insulator he has left an air-space about 1½ in. wide, which it is found makes the working of the instrument much more reliable. As an instance of the facility with which it can be re-set to work in the event of accident, it may be mentioned that a few days before the exhibition of the coil it was, owing to a slight imperfection in the covering, disabled. The whole of the secondary wire was quickly wound off, and it was found that the damage arose from a portion of the cotton covering the primary wire having been burned off by the electricity; yet the injury was repaired, and the coil got to work again, in less than 48 hours. At the private view the maximum length of spark obtained with 48 Bunsen cells, each containing a pint of nitric acid, was 24¼ in., but it was stated that Mr. Apps had, in experiments made by himself, obtained still better results. With five cells he obtained a spark 10 in. long, and adding five cells at a time he obtained sparks of 14, 17½, 21¼, 23, 23½, 26, and (with 40 cells) 27½ inches in length, respectively, a battery of 50 cells giving a spark of from 28 to 29 in. long. In connection with the coil, there was a very valuable and ingenious platinum-amalgam contact-breaker, also devised and manufactured by Mr. Apps. The improvement consists simply in increasing the depth of alcohol, so as to prevent the rising of the fluid at the moment of breaking contact. The entire apparatus and accessories reflect the highest credit upon the manufacturer, and are calculated to add much to the popularity of the Polytechnic Institution, the directors of which have, through Prof. Pepper, done all in their power to promote the success of the trial. As an example of the power of the great coil, it may be mentioned that by it a battery of 12 Leyden jars is instantaneously charged by three sparks from the coil; it required 10 minutes to accomplish the same work, both by the large hydro-electric machine and by the plate machine (which had a plate 10 ft. diameter, and was driven by a 10-horse power engine) formerly used at the Polytechnic. The instrument will form a great attraction for the Easter holidays.

MANUFACTURE OF IRON AND STEEL.—Messrs. L. SIBERT, D. C. E. BRADY, of Buffalo Forge, and J. D. IMBODEN and S. M. BARTON, of Richmond, Virginia, U.S., have patented a new and improved method of treating iron ores while in process of reduction in a blast-furnace, and of treating cast-iron in a cupola or other melting furnace for the production of steel or a superior quality of iron having in some degree the properties of steel. It also relates to a method of treating the molten metal after it has left the blast or melting furnace, but while it is retained in a molten state, for the purpose of effecting a more complete purification. The first part of the invention relating to the treatment of the ore or iron in the reducing or melting furnace consists in the use of a flux composed of manganese and common salt (chloride of sodium) with limestone or shells, such flux being introduced into the furnace to or with the ore or iron, and acting upon the ore or iron during and after its fusion and while subjected to the action of the blast to decarbonise it, and to cause the expulsion and carrying off of silicon, sulphur, phosphorus, and other impurities, and bring the iron to such a state that on its being simply cast into moulds it will have the character of cast-steel, and may when cast in moulds of suitable form be used for various purposes without further manipulation, or may when cast in ingot moulds be subjected to the operations of hammering and rolling to reduce it to the form of bars of any required shape for the manufacture of tools or other articles requiring hardness and temper. The method of introducing the flux to the furnace may be the same as that of introducing any other flux, but in order to prevent the salt from sinking too rapidly through the furnace it is proposed generally to reduce it by water to a saturated solution, and to throw or sprinkle this solution upon the ore or pig or cast-iron, and allow or cause its water to evaporate before introducing the ore or metal to the furnace. The fuel and ore or metal may then be introduced to the furnace in the usual manner, and the requisite quantities of manganese and limestone or shells introduced above each charge of ore, and the operation of reducing or melting be proceeded with in the usual manner. The quantity of the flux employed may be varied according to the quality of the ore or iron to be treated. In aid of the manganese, and to some extent as a substitute for it, there may be used iron ores of qualities containing large proportions of oxygen, and by such use of such ores or of crude metal more or less highly carbonised the fused mass may be operated upon to regulate and grade the quality of the metal produced. When the steel or refined iron thus produced is to be made by hammering or rolling, or both, into bars of suitable shape for the manufacture of tools or other articles, it may be run from the reducing or melting furnace into heated ingot moulds of cast-iron, and then covered with powdered manganese, and the moulds set in a heating furnace and kept at a uniform high heat, but not in a molten state, for several hours, or until the metal has parted with a portion of its carbon which is taken up by the oxygen in the manganese, and has become of a more steel-like character. The metal having been thus kept at a uniform high temperature for a long time is cooled slowly in the furnace, and in the process of crystallisation under these conditions the molecules arrange themselves in such relation that the metal after hammering and rolling possesses the flexibility and tenacity of cast-steel. When it is desired to give the metal a higher quality, resembling that of the better qualities of cast-steel, instead of running it from the reducing or melting furnace into ingot moulds as hereinbefore described, it is run into crucibles which are placed in a heating furnace, wherein it is kept in a molten state for several hours before casting into bars, or ingots, or other forms, and about from 20 to 30 minutes before casting, there is introduced and stirred into it sulphate of magnesia in the proportion of about one part by weight to every 1000 parts of the metal.

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WATSON BROTHERS' MINING CIRCULAR

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MESSRS. WATSON BROTHERS return their most sincere thanks for the great patronage bestowed and confidence reposed in their firm for 25 years, and to assure their friends and clients it will be their earnest endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which has had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column.

In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS, they are emboldened to offer, thus publicly, their best services to all connected with mines or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

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PRINCE OF WALES.—The silver lode runs through this mine for a length of 90 fathoms, and we hope shortly to give a description of it. The district surrounding Prince of Wales, and even the south part of one sett, has been notoriously rich for silver, and 30 to 40 years ago many thousands of pounds worth were raised from it.

SATURDAY.—Good demand for Grenville, West Chiverton, West Frances, General Brazilian, Providence Mines, East Caradon, Prince of Wales, and Great Laxey. Grenville, 49s. to 51s.; West Chiverton, 51½ to 52¼; West Frances, 49 to 51; Providence Mines, 39 to 41; General Brazilian, 16s. to 18s.; Great Laxey, 19 to 20; East Caradon, 7⅞ to 8⅛; Prince of Wales, 22s. 6d. to 25s.; East Grenville, 5⅞ to 6⅛; Chontales, 27s. 6d. to 32s. 6d.; Tincroft, 18 to 19; Chiverton, 4¼ to 4⅜; North Treskerby, 16s. to 18s.; Taquarli, 12s. to 14s.

MONDAY.—The market is firm for East Grenville, Grenville, Wheal Agar, West Basset, West Frances, West Chiverton, Mineral Bottom, Providence Mines, Great Laxey, and General Brazilian. East Grenville, 5⅞ to 6⅛; Grenville, 49s. to 51s.; Wheal Agar, 25s. to 30s.; West Basset, 20s. to 25s.; West Frances, 49 to 51; West Chiverton, 51½ to 52¼; Mineral Bottom, 4⅛ to 4⅜; Providence Mines, 39 to 41; Great Laxey, 19 to 20; General Brazilian, 16s. to 18s.; Prince of Wales, 22s. to 24s.; Buller, 8 to 10; Chiverton Moor, 4 to 4¼; South Grenville, 2s. 6d. to 5s.; Chontales, 25s. to 30s.; Taquarli, 12s. to 14s.; Don Pedro, 4⅜ to 4⅞.

TUESDAY.—The market is active to-day for Great Wheal Vor shares, at an advance of 20s.; East Grenville, Grenville, Great Laxey, General Brazilian, Taquarli, West Frances, West Chiverton, Providence, and Seton shares enquired for. Great Wheal Vor, 16 to 17; East Grenville, 5⅞ to 6⅛; Grenville, 49s. to 51s.; Great Laxey, 19 to 20; General Brazilian, 16s. to 18s.; Taquarli, 13s. to 15s.; West Frances, 50 to 52¼; West Chiverton, 51½ to 52½; Providence, 40 to 42; Seton, 70 to 75; Mineral Bottom, 3¾ to 4; Chiverton Moor, 4 to 4⅛; Prince of Wales, 22s. to 24s.; South Herodsfoot, 20s. to 22s. 6d.; Chontales, 25s. to 27s. 6d.; Buller, 8 to 10.

WEDNESDAY.—Market active for West Basset shares at 2l.; East Grenville, 5⅞ to 6⅛; Grenville, 49s. to 51s.; Wheal Agar, 25s. to 30s.; Providence Mines, 40 to 41; Great Laxey, 19 to 20; West Frances, 51 to 53; Cook's Kitchen, 15 to 16; Chiverton, 3¾ to 4¼; Mineral Bottom, 3⅞ to 4⅛. Gold shares are not quite so firm.

THURSDAY.—There is a moderate demand for Grenville shares at 49s. to 51s.; East Grenville, 5⅞ to to 6¼; Herodsfoot, 44 to 46; Buller, 12½ to 15; West Frances, 50 to 52; Providence Mines, 40 to 42; East Caradon, 8 to 8¼; Great Laxey, 19½ to 20; Prince of Wales, 21s. to 23s.; Wheal Agar, 25s. to 30s.; Mineral Bottom, 3¾ to 4.

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Mining Correspondence.

BRITISH MINES.

BRONFLOYD.—T. Kemp, March 24: As requested, and in accordance with my report of March 17, we started a few days back to cross-cut the lode to the south from the main drivage of the 73 fm. level, and it gives me great pleasure to report that we have cut into an exceedingly rich body of ore, which, so far as seen, is worth quite 3 tons of lead ore per fathom. All other bargains are of heretofore reported value.

BRYN GWIOG.—S. Harper, March 24: The lode in the winze below the 85, west of Bramwell's shaft, is about 1 foot wide, composed of spar and lead ore, worth of the latter about 15 cwts. per fathom. The water being rather strong, and having a good lode in the east end, towards the shaft, I have put the men to drive an intermediate level, to prove if the run of lead is gone on in that direction. The lode in the 85 west still continues small, and at present unproductive for lead ore. It appears as if we are driving through a barren piece of ground. Our shaftmen have commenced driving west from the engine-shaft in the 102 fathom level, to commence with. The lode is small and poor for lead, but from the bearing of the long courses of ore in the above levels, we may expect an improvement in this level soon. Our tribute department in this part of the mine continues much the same as for some time past. At Lloyd's our tributers are raising a fair quantity of lead ore. We have now at surface a splendid pile of leadstuff, as fine rocks of lead as can be raised and seen in the neighbourhood. All other operations in the mine continue much the same as for some time past. We sampled a parcel of blende yesterday (estimated) 50 tons.

CALDBECK FELLS.—W. Francis, March 19: The winze sinking on the junction of the north and caunter lodes, under the 90 west, is worth 2 tons of copper and lead per fathom; sinking by six men, at 19l. per fm. The lode in the 90 west, on north lode, is worth 15 cwts. of blue lead per fathom; driving by four men, at 9l. 10s. per fm. In the 90 east, on north lode, the lode is worth 6 cwts. of copper and lead per fathom; driving by two men, at 12l. per fm. The stope west of rise, in back of the 90 west, on north lode, is worth 16 cwts. of blue lead per fathom; stoping by four men, at 3l. 10s. per fm. The stope east of rise, in back of the 90 west, on north lode, is worth 1 ton 5 cwts. of blue lead per fathom; stoping by four men, at 3l. 15s. per fm. We have resumed the driving of the 80 east, on the north lode, and the lode in same is worth 6 cwts. of copper and lead per fathom; driving by two men, at 12l. per fm. No. 1 stope, in back of the 80 west, on north lode, is worth 1 ton 10 cwts. of blue lead per fathom; stoping by four men, at 4l. 15s. per fm. No. 2 stope, in back of the 80 west, on north lode, is worth 14 cwts. of copper and lead per fathom; stoping by four men, at 4l. 5s. per fathom. No. 1 stope, in back of the 80 west, on caunter lode, is worth 12 cwts. of blue lead per fathom; stoping by four men, at 3l. 5s. per fm. No. 2 stope, in back of the 80 west, on caunter lode, is worth 9 cwts. of blue lead per fathom; stoping by four men, at 3l. 5s. per fm. The stope in back of the 80 east, on south lode, is worth 8 cwts. of grey lead per fathom. We have been driving east on a south branch, in the stope in back of the 70 west, on north lode, but finding the branch to be poor we shall again resume the stoping. There is no change worthy of particular notice in the 60 west, on north lode; driving by four men, at 7l. per fm. The stope in back of the 60 west, on north lode, is worth 10 cwts. of copper and lead per fathom; stoping by two men, at 3l. 15s. per fm. In the cross-cut driving south in the 30 west, on north lode, we find the lode to still maintain its favourable character, but as we have not yet reached the south wall we are not in a position to give the full value of the lode; driving by two men, at 11l. per fm. We are still driving the cross-cut south from present end in the 30 west, on north lode; driving by two men, at 5l. 15s. per fm. There are four stopes working (in old workings) in back of the 30, worth in the aggregate 2 tons 19 cwts. of blue and grey lead per fathom. The stope in the back of the 50 east, at Crown Point, is worth 10 cwts. of grey lead per fathom; stoping by four men, at 2l. 5s. per fm. We are still stripping down the lode from the south side of the 70 east, at Crown Point, and find it to be worth 8 cwts. of blue and grey lead per fathom. The ground continues favourable for driving in the 90 east, on south lode; driving by six men, at 3l. per fm. We have fixed the pent-house, and cleared out the engine-shaft under the 90, and the men are now engaged casing down the same. The masons are employed building flue for boiler house, but their progress has been somewhat retarded by the frost.

CAPE CORNWALL.—R. Pryor, March 22: The ground in the 100 fm. level cross-cut, driving north of the engine-shaft, is strongly mineralised, indicating as if near a lode. In the 70 fm. level cross-cut, driving south of shaft, the men are making fair progress. The ground is much the same as last reported on.

CARADON CONSOLS.—S. Bennetts, March 23: The necessary preparatory work is nearly completed, and we expect to commence sinking the shaft below the 78 to-morrow. On the gossan lode, in the 78 west, there is not much change to notice during the past week. In the cross-cut north another patch of elvan has been met with, but whether it is a regular elvan course is not quite apparent.

CENTRAL MINERA.—Wm. Davies, March 24: The lode in the 50 yard level north consists of chert, easy for pregress. The ground in the cross-cut from south lode produces occasional stones of ore. The pitch yields occasional stones of ore. No alteration in any other portion of the mine.

CUDDRA.—A. Cundy, March 23: The lode in the 142, west of Walker's shaft, has been very productive for the 5 or 6 fms. in length opened upon, and will average in value for that extent fully 80l. per fm. Our prospects are still good in continuing the driving westward, and there is every reason to believe that in the course of a few weeks we shall have opened up a splendid piece of tin ground to increase our returns. In the stope in back of the 142, east of winze (20 fms.), the lode is 9 feet wide, and worth 8l. per fm. In the 130 end driving west the lode is 10 ft. wide, worth 12l. per fm. In the stope in back of the 130 and east of winze the lode is 12 ft. wide, and worth 15l. per fm. In the stope in bottom of the 100, west of Walker's, the lode is 12 ft. wide, and worth 20l. per fm. In the western stope in the back of this level the lode is 14 ft. wide, and worth 9l. per fathom. No lode has been taken down in the eastern stope in the back of the 100 since last reported. We shall sell about 20 tons of tin next week.

CWM DARREN.—R. Clocker, March 24: Since my last I have nothing new to inform you respecting the lode in the engine shaft. On Saturday we expect to be down close on 11 fms., and should be glad to hear from you whether we are to continue sinking further, or whether we shall commence driving east and west at that depth; we would rather recommend the latter. The adit driving west, 130 fms. west of engine-shaft, has a most encouraging appearance, from which we are still breaking some excellent stones of silver-lead ore. Our machinery is in good order, and working well.

CWM ERFIN.—March 23: The lode in the 20, east of the boundary, is small and unproductive; the ground is hard, and slow for progress. The various stopes over the back of the deep adit level continue to look very promising; we have 16 men employed in the same; the lode is from 3 to 9 ft. wide, and will yield on an average 1½ ton of lead ore per fathom. The lode in the rise over the back of ditto, 45 fms. east of the boundary, is 6 ft. wide, and worth 15 cwts. of lead ore per fathom. The lode in Taylor's drift, west of the rise, over the back of deep adit level, is 18 in. wide, composed of killas, branches of spar, and spots of blende, looking a little more promising than when last reported on. The lode in the same level, east of the boundary, is 2 ft. wide, composed of clay-slate, quartz, and spots of lead ore, but not to value. We expect to effect a communication with these levels in about eight weeks from this date. The lode in the stope in the bottom of Taylor's drift, 12 fms. west of Robert's winze, is 3 ft. wide, and worth 14 cwts. of lead ore per fathom. The lode in the stope over the back of this level is 4 ft. wide, and worth 1 ton of lead ore per fathom. The lode in William's level, east of the boundary, is 2 ft. wide, containing killas, branches of spar, and spots of mundic; the footwall of the lode flat and unkindly. We continue to drive the cross-cut north in this level, now in about 16 fathoms from the other lode, but up to this date have not met with anything of any value. We have also driven south 22 fms. in the same level, but nothing of any value has been seen. We have one stope working in the bottom of Williams's level, in which the lode will yield 12 cwts. of lead ore per fathom. The stope over the back of ditto does not look so well as it did, the lead gradually falling off as we approach the surface; the present value is about 15 cwts. of lead ore per fathom. The mine with its machinery is in good working order. We shall sample again on Tuesday next 45 tons of lead ore.

DEVON AND CORNWALL UNITED.—J. Donnal, E. James, March 24: The lode in the 34, west of engine-shaft, still continues large; about 3 ft. of the south part is being carried, yielding good work for copper ore, with good prospects for an improvement. There is no particular change in the 22 west since last report. The water is forked to within 2 ft. of the bottom of the 46 in the whim-shaft. There are some repairs required in the pitwork here, which will be completed and the water got out, so as to commence driving this level west next week. A lift of pumps has been taken up from the engine-shaft to be cleared out, there being great difficulty in getting water through them. This was necessay in order to get water for dressing and condensing. The whim-engine is now completed.

EAST PROVIDENCE.—J. Nancarrow, W. White, March 22: The sinking of Boorman's shaft is continued regularly; the men are making moderate progress. The caunter lode, at the 122, is 1 foot wide, and is likely to improve as it approaches the north and south lodes. We are making fair progress in the rise above the 106, and also in the winze below the 94, and expect these will be communicated about the end of the month. The tin continues east in the 70; the lode is worth about 5l. per fm. We have commenced driving the 60 east, and hope soon to get into the tin ground. The 50 opens tribute ground as usual. We have cut the branch on the west side of the cross-course, where it will work at 6s. 8d. in 1l.; this is important, as we are likely to open up good tin ground in that direction. The pitches look just the same as they did at the setting.

EAST SNAEFELL.—W. H. Rowe, March 23: The men have made a good start with the sinking of the shaft below the 35, and are down fully 3 feet. A branch forming on the footwall appears to be getting stronger, and shows a little lead and jack. The 35 end south is in close ground, and vein small.

EAST WHEAL GRENVILLE.—G. R. Odgers, W. Bennetts, March 24: The lode in the 120, west from the engine-shaft, is 20 in. wide, of a very promising appearance, and worth 1 ton of copper ore per fathom; here we look forward to an improvement. The lode in the rise above the 110 east is worth 10l. per fm. The lode in the 95 east is worth 1 ton of copper ore per fathom. In the 85 fm. level the lode is getting larger, and, judging from the good lode of ore gone below the 75, we are daily expecting an improved lode. The lode in the 75 will produce 1½ ton of copper ore per fathom. In the 65 we have a slide very similar to the one we had in the 55; to the east of the slide in the latter level we found the copper ore. In the 65 we are stripping down the north side, where we find a number of branches, all of which contain copper ore, and throwing a great deal of copper tincture; in a very short distance driving these branches will be together, when we may expect like results to those met with in the 55. The lode in the 55, from the shaft, has made another squeeze; it is 18 in. wide, and worth 1½ ton of copper ore per fm.; from the experience we have had of the lode in this level we are pretty confident it will change again very shortly. This level has already been driven 30 fms through continuous ore ground, which end is now 6 fms. before the last pitch; hence it has nearly opened another pitch, that will be wrought at a very low tribute. The pitch above this level continues to look very well, worth 25l. per fathom. The rise is up 9 fms. above the 55, and hence we are hourly expecting to hole it with the 45. We have not taken down any lode from the last 2½ fathoms rising; when last taken down the lode was worth 3 tons of copper ore per fathom, or in other words, 18l. to 20l. per fm. As soon as this is holed we anticipate breaking a good pile of copper ore from this place. The men are making steady progress with the 45 cross-cut, or side-tie; this has been a great drawback to us, but we are using every effort we possibly can to reach the lode. No other change.

EAST WHEAL REETH.—T. Uren: The mine is looking well, and the lode continues its large size. The tributers sold some tinstuff last week at 15s. per bushel, and they will sample again next week. Now the adit is cleared to the lode I have no doubt we can raise a very large quantity of tin without steam-power, and I think it will make as good a mine as its neighbour, where the adventurers made so much money on a small outlay.

FRANK MILLS.—J. Cornish, F. Cornish, M. Addems, March 24: We have passed through a lode, or part of the lode, in the 145 cross-cut west, about 2 feet wide, consisting of quartz and white iron, and letting out water, but the ground is rather stiff. The east lode, in the 145 south, has been rather disordered and unproductive of lead ore to value, but it is again re-forming, and becoming productive. The stope in back of this level north is yielding ½ ton of lead ore per fathom. There is no change in the cross-cut east from the 130 north, the ground being still rather stiff. The lode in the 84 north end is 2 feet wide, consisting principally of lead ore and sulphurous mundic, and producing of the former fully 1 ton of lead ore per fathom. The lode in the rise just behind said end also producing 1 ton per fathom. The 72 north, on Hancock's lode, is at present unproductive of lead ore to value. We have no change in the 72, north from Taylor's cross-cut, since our last report. Two stopes in the back of this (the 72) level continue to yield ¾ ton of lead ore per fathom respectively. The 60 south, on Hancock's lode, contains a little ore, but not yet sufficient to value. The three stopes in back of this level are yielding on an average ¼ ton per fathom. Our tribute department is without any material change since our last, and we are making fair progress generally in the various departments.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., March 20: We have cut into the lode in the 82 cross-cut, driving north from King's engine-shaft, and drained the water from the upper levels quite dry. The part of the lode now in the present end is principally composed of spar, impregnated with good-quality yellow copper ore, intermixed with mundic, and showing a very kindly appearance. We calculate to have some 4 fms. further to drive through the lode to reach the north or foot wall. The lode in the 70 east is not quite so good as last reported. The lode in the stope and winze going down below the 70 is worth from 8 tons to 10 tons of ore per fathom. The lode in the 60 east is unproductive. We are busily engaged in preparing for our next sampling, which we calculate will be over 120 tons of copper ore.

GREAT LAXEY.—J. Barkell, March 16: Owing to the great influx of [illegible] we have had since cutting through the slide in the 190 fathom level, our progress in forking the water below that level has been very slow. The water is now down as low as the 210, and we intend to resume the driving of that level north in the course of a few days. There is no improvement in the 200 fathom level end, driving south towards the copper ground; the lode in the end is poor. The lode in the 200 fathom level end, driving north, is still worth 50l. per fathom. We have just now come up to the same slide that we have in the 190, and I hope when this slide is cut through in this level that the water will be drained from the 190. The lode in the 190 fathom level end, driving north, is worth about 60l. per fathom. The 180 fathom level end, driving north, is still opening out rich ore ground, worth for lead and blende from 70l. to 80l. per fathom. There is no change to notice in the sump coming down to this level from the 165 since last report. The 155 fathom level end, driving north, is worth from 70l. to 80l. per fathom. The 145, driving north on the east vein, has considerably improved, now worth fully 40l. per fathom.—Dumbell's: The lode in the shaft sinking below the 140 continues to improve as we descend, and the lode in the end driving north in the 140 is also improving, now worth 70l. per fathom. In the 125 fm. level end north, since the sump was holed from the 110, we have been engaged in widening the level and fixing a new tramway, to get the stuff out. The lode in the end is still worth about 120l. per fathom. In the 110 we are now cutting out ground to commence a new sump or winze, consequently the driving of the end north must be discontinued until the sump is holed to the 125 for ventilation; the lode in the sole of the level where we shall commence the sump is worth 100l. per fathom. There is no change worthy of notice in the end or stopes above the 110 fathom level.—Glenroy: We have completed the casing and dividing of the engine-shaft to the 37, and have commenced driving both north and south from shaft. The lode in each end is looking very promising, and the ground is very favourable for progress; we are not yet out of the influence of the slide recently intersected in the 25 fathom level end driving north, but the ground is getting more settled as we advance, and I believe the lode will resume its former value very soon.

GREAT NORTH DOWNS.—W. Rich, W. Ennor, March 24: Owing to an accident to the boiler at Wheal Rose, and the engine being idle, we have not been able to keep Sleggan's shaft in fork, but have some 6 fms. of water in the bottom of this shaft; we hope, however, to have the mine drained in a few days. The south lode in the 64, west of cross-cut, is improved, now worth 12l. per fathom. The stope behind this end is worth 10l. per fathom. The stopes in the 64, east of Butler's, are worth 10l., 8l., 6l., 6l., and 5l. per fathom respectively. The tin lode in the 48, west of King's, is worth 10l. per fathom. The stopes in the 74, west of Sleggan's, are worth in the aggregate 40l. per fathom. We are driving a cross-cut south in the 74 fm. level, west of Sleggan's shaft.

GREAT NORTH LAXEY.—R. Rowe, March 23: There is no change of note in the 110 and 96 fathom level ends, driving north, since last report. In the 84 fathom level end the lode is still looking well—3 ft. wide, and worth about 1 ton of lead per fathom. The 73 fathom level end, lately resumed, has already come to an improvement; the lode is now from 2 to 3 feet wide, and on the hanging part we have, for about 1 foot in width, some very promising quartz, mixed with lead. In all probability we shall be able to announce a further improvement here shortly. The 27 fathom level end, driving south, is still looking very well in the bottom, but scarcely so good in the roof as when last reported; the lode is 8 ft. wide, and worth about 15 cwts. of lead per fathom. There is no particular change in any of the stopes.

GREAT NORTHERN MANGANESE COMPANY.—J. Harris, March 24: The lode in the adit or bottom level is from 4 to 5 ft. wide, containing a good quantity of manganese of fine quality, and good indications for improvement. In No. 1 level no change since our last report. The old sump in No. 1 level we are driving east and west, with good manganese in the forebreast of each; the indications show for a great quantity of ore.

GREAT ROYALTON.—Thos. Parkyn, March 24: We are bringing home the open lobby, so as to take off all the surface water; this is important, and will be completed this week. This drain will come in as deep as William Tellam has sunk on the lodes, so that the moment we commence sinking we shall be raising tin. I intend sinking on the middle lode, which is from 3 to 4 ft. wide, containing rich work for tin; this lode is underlying north, and taking its course nearly east and west. There is another lode south of this one, 2 ft. wide, rich for tin; this underlies north, just as the other or middle lode, about 20 fm. to the fathom. There are also two other lodes north of these, each about 2 ft. wide, underlying south towards the other lodes referred to, and they will, consequently, form a junction at about 12 fathoms from surface, to which point I look forward with great interest, and feel assured that you will have a large and rich deposit of tin there. All these lodes being embedded in a good tin-bearing killas, and being close upon the junction of granite, and situated in one of the richest tin districts in Cornwall, cannot fail to yield large and profitable returns of tin. I have also found another lode north of the four lodes mentioned, which is 6 ft. wide, and contains rich tin. I can trace this lode for a considerable distance, it having been sunk on by the ancients; this lode will greatly enhance the value of this property. There is also a large elvan course running through the sett, containing a great number of branches of tin; this elvan will intersect all these lodes, which I consider is a most important feature. The man that had been raising tin on the backs of these lodes sold it last week, and it was nearly a ton, although he has only been working by himself; notwithstanding which, he has made several like returns, and this goes to prove the great value of the property. The engine will be brought to the mine on Saturday, and will be fixed in its place as early as possible. The shaft will also be commenced with all possible speed, so that tin may be sent into the market the earliest moment, and the ground being easy for sinking it will be done very soon, and when we reach the junction you may expect several tons of tin per month, as very large quantities of rich ground will be laid open rapidly. Upon the whole, I am highly pleased with the prospects of Great Royalton, and being the man that discovered the Royalton Mine, and brought it into a first-class position, I am looking forward to great success in Great Royalton. I have been a resident in the immediate neighbourhood for 30 years, and all this time have been engaged as a practical miner and agent; consequently, I know the district well, and the mode of working, &c. I write this report with great pleasure, feeling assured you have a most valuable mine in Great Royalton.

GREAT SOUTH CHIVERTON.—J. Nancarrow, March 23: The lode in the 20 is not so large as it was last week, but looks very well as we approach the Chiverton lode. We are making fair progress in rising above the 30. The 40 east is a very promising end. There is nothing new in the rise above the 40 or in the 50 east. The lode in the 50 west is 5 ft. wide, a fine strong lode, composed of carbonate of lime, spar, copper, mundic, and blende; in addition to which there is a flookan come into the lode from the north, which is likely to improve it a little further west.

GREAT SOUTH TOLGUS.—J. Daw, March 24: The water is forked 4 fms. below the 154 fm. level, and we have again set all the tribute pitches and cut-work bargains, except the 168 fm. level cross-cut. On Friday last we set two tribute pitches, one in the back and the other in the bottom of the 154 fathom level, to fourteen men, at 4s. in 1l.; also another in the back of the 154 fathom level at 7s. 6d. in 1l., and six others at 10s. and 11s. in 1l. In the 154 fathom level, west of No. 1 cross-cut, the lode is worth 25l. per fathom; set to six men, at 8l. per fm. In the 154 fm. level, west of No. 2 cross-cut, the lode is 4 ft. wide, worth 25l. per fathom; set to four men, at 12l. per fathom. The lode in the stope in the back of the 154, and west of No. 1 cross-cut, is worth 15l. per fm.; stoping by four men, at 3l. per fathom. We have also commenced to drive the No. 3 cross-cut, by four men, at 10l. per fathom. In the 140 fm. level, west of cross-cut, the lode is 4 ft. wide, worth 8l. per fathom; set to four men, at 7l. per fathom. In a few days we shall have a full supply of work for the stamps.

GREAT WESTERN.—Edward Rogers, Edmund Rogers, March 24: Fisher's Lode: Thomas's engine-shaft is enlarged 29 fathoms from surface. In the 20, east of the Pressure shaft, the lode is 4 ft. wide, worth 12l. per fathom. In the 30, east of Annie's engine-shaft, the lode is 18 in. wide, worth 2l. per fathom, and opening profitable ground.—Middle Lode: At Curtis's flat-rod shaft we have removed the small lift of pumps, and fixed a larger size; the men are now engaged sinking the shaft. In the 20, east of this shaft, the lode is 3 ft. wide, producing tinstone that will just pay for stamping. In the 7 the lode is 2½ ft. wide, worth 3l. per fathom.—Caunter Lode: In the 20, east of Curtis's shaft, the lode is 6 in. wide, producing a little tin. In the 17 from surface the lode is worth 2l. 10s. per fathom, and passing through ground that will be taken away on tribute.—South Lode: In the adit level, driving west of White's shaft, the lode is 6 in. wide, yielding a little tin, but not enough to set a value on.

GWYDYR PARK.—W. Smyth, March 23: The lode in the shaft at Gwyn Llifon is still small, and more downright than when last reported. I had a few holes fired in the hanging-wall, to prove if there were any lode in that direction, but found nothing; therefore, the men have resumed sinking. The Vucheslas deep adit is showing a little more spar and blende.

IMPERIAL.—E. Pearse, March 24: The engine-shaft is down a little over 7 fms. below the 20, and the ground still continues favourable for sinking. Nothing new in the adit cross-cut or in the tribute department since my last.

MARKE VALLEY.—J. Truscott, March 23: Marke's Lode: The 124 east is producing 1 ton of ore per fathom, the 134 west 2 tons, the 112 east 2 tons, and the 100 west is poor.—Rosedown Lode: The 90 west is yielding 2 tons, the 80 west 3 tons, the 60 west 2 tons, the 50 west 1 ton, the 40 west 1 ton, the 20 west 3 tons, and the 20 east 3 tons per fathom.

MAUDLIN.—J. Tregay, March 20: The lode in the rise in back of the deep adit is at present much divided into branches. The lode in the stope, west of rise, will produce 1¼ ton of good copper ore per fathom. The south branches in the deep adit level produce good stones of copper ore.

MINERA UNION.—W. T. Harris, March 24: Low's Shaft: The lode in the 60 yard level north is 2 ft. wide, of carbonate of lime and blende. The cross-cut going west from this level is hard for progress, but the ground is very congenial for lead; according to measurement we are not far from intersecting the

lode.—Brabner's Shaft: The ground in the 80 yard level cross-cut consists of black limestone and shale.—Boundary Shaft: The ground in the 60 yard level is hard for progress, but very promising for lead. The tribute pitches are the same as last reported.

NEW CROW HILL.—A. Kent, T. Trelease, March 23: At the engine-shaft the ground continues pretty favourable for sinking through. On Saturday we put down a drawing-lift, for sinking with. Our pitwork is in good working order.—Wheal Louisa: In the 75 fm. level we are pushing on the cross-cut as fast as the nature of the work will allow. We have lately passed through some branches of spar and mundic, &c., similar to the ground passed through in the 60 fm. level cross-cut: from present indications we think that the cross-cut is very near the south part of the lode.

NEW GREAT CONSOLS.—R. Pryor, T. Bennetts, R. Trathen, March 23: The lode in the 86, west of Ellis's engine-shaft, on the north part, is spare and troublesome for driving, being mixed with spar. We have six men clearing up an old winze below the 74, west of shaft, in order to sink the same, so as to effect a communication with the 86 fm. level, which will give good ventilation, and open up a valuable piece of tribute ground. The lode in No. 1 stope, in the back of the 64, is worth 9l. per fathom; No. 2 stope, in back of ditto, is worth 12l per fathom; No. 3 stope is also worth 12l. per fathom. The lode in No. 1 stope, in the back of the 52, is worth 9l. per fathom. In No. 1 stope, in the back of the 40, the lode is worth 7l. per fathom; No. 2 stope, in the back of this level, is worth 14l. per fathom; No. 3 stope, in back of ditto, is worth 8l. per fathom. No. 1 stope, in the bottom of the 30, is worth 9l. per fathom; No. 2 stope, in the back of ditto, is worth 10l. per fathom. No. 1 stope, in the bottom of the 20, is worth 12l. per fathom. No. 1 stope, in the bottom of the 10, is worth 8l. per fathom; No. 2 stope, in the back of ditto, is worth 9l. per fathom. The men in Rendle's shaft have not made the progress that was expected, in consequence of the late heavy rains, which have increased the water in this shaft. There is no other change worthy of remark.

NEW WHEAL TOWAN.—R. Pryor, March 24: There has been no particular change taken place in this mine during the past week.

NORTH DOWNS.—F. Pryor, J. Williams, March 23: We have set the 85 to six men, at 11l. 10s. per fathom; the end is still very wet; the lode has not been taken down since last reported. The 60 west, from point of horse, by six men, at 5l. 10s. per fathom; lode producing a little ore. The 60, west of cross-cut, on the south lode, by four men, at 5l. 10s. per fm.; the lode is looking more promising than for some time past. The rise in the back of the 40 by six men, at 7l. 7s. per fathom; the lode is producing stones of ore. The stopes in the back of the 60 are worth 10l. per fathom. The sump-winze is again improving, and there is no doubt in our next report we shall be in a position to value it much higher than now. We set seven pitches, at tributes varying from 7s. to 12s. in 1l. Our sampling will not be less than we calculated—120 tons.

NORTH TRESKERBY.—R. Pryor, T. Jenkin, March 25: We are glad to say that the water is again in fork, so as to enable us to resume all our profitable bargains. The lode in the 120 fm. level end, east of Tresidder's shaft, is worth from 1¼ to 2 tons of ore per fathom; it must be borne in mind that this end is only now within 2 fathoms of the point where the ore ground was met with in the level above, so a great improvement may be shortly expected in the end. The 110 fm. level end is at present suspended, and the endmen engaged putting up a rise for ventilation, where the lode is worth 2½ tons of ore per fathom; this rise is likely to lay open a valuable piece of ground. The lode in the stopes in the back of this level is still worth 3 tons of good ore per fathom. Some little time since we remarked in our report that the elvan course had just made its appearance in the south side of the 100 east, which we consider to be a great feature, and the lode in the end has within the last day or two undergone a very important change, and judging from present appearance we think that a great improvement will be met with in this end shortly; and, on the whole, our prospects are very good.

NORTH WHEAL CHIVERTON.—Wm. Hancock, Wm. T. Bryant, March 23: The engine-shaft is cased and divided and plat cut about 13 fms. below the 100, and the shaft in regular course of sinking below by six men. The 90 east is being driven on the north part of the lode, of which we are carrying about 4 ft.; it is still producing stones of lead of a promising appearance, and near under the shoot of lead ore gone down in the level over. The flat-rods was put to work at Hicks's shaft about a fortnight since, and works well; this shaft is also in regular course of sinking, now down a little over 20 fms. from surface, and going down in as pretty a channel of ground as can be seen for making a profitable lode at a reasonable depth; from the nature of the ground we calculate to sink about 4 fms. a month at this shaft. We have put in new air-pump, &c., to engine; the machinery is now in pretty good trim, and no time will be lost in getting down the shafts the contemplated depth to cross-cut to the lodes. We sampled to-day about 25 tons of blende, and are in the way of dressing some lead.

OLD GUNNISLAKE.—F. Phillips, March 24: In Parker's shaft there is no change in the lode or ground since last report; about 3 ft. has been sunk. In the deep adit about 6 ft. has been driven, but we have not yet intersected the lode as yet; ground somewhat harder.

PEDN-AN-DREA UNITED.—W. Tregay, J. Thomas, March 20: Sump: We got the water in fork on Monday, and have been working the bottom level during the week. The lode in the 140 east end is worth 10l. per fm. The lode in the 140 west is worth 30l. per fm. In the 120 east, on Skimmer's south lode, the lode is worth 12l. per fm. In the 120 east, on Skimmer's main lode, the lode is worth 6l. per fm. In the 120 west winze the water having gone down we have resumed the sinking; the lode is worth 10l. per fm. In the 120 north cross-cut the ground is favourable for driving, and fair progress is being made. In the 90 east, east of the 100 rise, the lode is small, and produces a little tin, but not to value. In the 68 east we are still getting away the attle fallen down in front of the tinstuff, and expect this will require another week.—Cobbler's: Martin's Lode: In the 120 west the lode produces occasional stones of tin, not to value—North Lode: The lode in the 90 east end, still in the cross-course, is unsettled producing rich stones of tin. The improvement telegraphed to you on Thursday in the 90 west is fully sustained, the lode in the end being worth 50l. per fm.—North Shaft: In the 55 we have had a heavy fall of ground from the cross-course and have been most of the week clearing and timbering, so that small progress has been made; this is now apparently secure, and we expect to make good progress in sinking this shaft; the lode in bottom of this shaft is worth 40l. per fm. In the 55 west the improvement telegraphed to you also maintains its character, the lode being worth 40l. per fm. The lode in the 47 west end is worth 40l. per fathom. In the 47 cross-cut to south mine we have had a heavy piece of timbering, but expect shortly to be enabled to get through lighter, and to make good progress. It is our purpose to push this on as rapidly as possible, in order to facilitate the development of this level both east and west.

PENHALE UNITED.—R. Pryor, H. Bennetts, J. Pryor, March 24: The lode in Phillip's engine-shaft, sinking below the 90, is improving in size, appearance, and character, and is worth 25 cwts. of lead per fathom. The lode in Hall's shaft, sinking below the 90, is worth fully 6 cwts. of lead per fathom, and promising for further improvement. In the 90, driving north of this shaft, the lode continues to be worth fully 2 tons of lead per fathom; this level appears to be on the top of a good course of lead. We have this day sampled about 22 tons of good quality lead. The ground in Phillip's and Hall's shafts is favourable for sinking, and the men making good progress. All other places are without change to notice since our last report.

PENHALE WHEAL VOR.—Wm. H. Martin, March 23: The ground in the engine-shaft is of much the same character as reported last week, now down 15 fms. 3 ft. below the 94; we are pushing down the shaft as fast as possible, and are anxious to see the lodes under the slide, where we expect an improvement. The lode in Ritchie's shaft, sinking under the 60, is 1 ft. wide, of prian, mundic, and produces stones of tin. The engine and pitwork are in good working order.

PRINCE OF WALES.—J. Gifford, W. Gifford, March 23: In the 65, cross-cutting north, we have met with the cross-course which we went through in the 55, east of winze, underlying east, and the same which accompanied our best course of ore in the levels above. In the 66 west we are driving by the side of the lode. In the 55 east the lode is 2 ft. wide, composed principally of gossan and capel. The 35 cross-cut south is progressing with all possible speed. In the 55 west the lode is small and poor. The 55 east, on the south lode, is without change. In the 45 west the lode is 2 ft. wide, and principally composed of capel and quartz. The stope in back of the 55 east is worth 30l. per fathom. Two stopes in back of the 55 west are worth on an average 10l. per fm. each. The stope in back of the 45 west is worth 12l. per fathom. We have cut tribplat, put in pent, and fixed standing-lift in the 65, and shall set the shaft to nine men on Saturday next.

PRINCESS OF WALES.—T. Foote, March 22: The ground in the engine-shaft is easy for progress, and all that can be desired for the production of copper ore. We have now the pitwork on the mine for the standing-lift, which we purpose to commence about to-morrow; when this is completed—which will only take a few days to accomplish—we shall make rapid progress in sinking Harris's shaft for another level, which I should like to make 15 fms.; this would be to the advantage of the company. First, it would be 15 fms. deeper than any point where the lode has been seen; and, secondly, it would give us a fair length for our first plunger-lift, which would be about 35 fms., and the lode will be near the plat that will have to be cut at that depth. In driving north at the 20 we have passed through the gossan lode, which is full 5 ft. wide, and as fine a looking lode as can be seen at this depth in this or any other mine. I have not the least doubt of this lode in depth, if gossan is to be taken as a guide in this as well as other mines. We are now pushing on the 20 towards the main lode, and every effort will be made to reach the same as soon as possible. The engine and all other work is going on satisfactorily; and we are pleased to say that the buildings, roof, &c., have stood the storm we have had during the past week well.

— Thos. Foote, G. Rickard, March 24: We are pushing on both the sinking of Harris's engine-shaft and the driving of the cross-cut north towards Vosper's lode as fast as possible. The ground at each point is favourable for exploring, and good progress is being made.

PROSPER UNITED.—John Nicholls, J. Hall, Christopher Lobb, March 25: The 100, west of Hand's, is without change. The rise and stope in the back of this level are each worth about 15l. per fathom. The 90 west is worth 12l. per fathom. The two stopes in the back are each worth about 10l. per fathom. The winze in the bottom of the 90 is worth 15l. per fathom. The 80 west has very much improved; the lode is now 3 feet wide, worth 20l. per fathom; this discovery has the best appearance for permanency of anything we have seen in the mine. We hope to reach the same run of tinny ground in the 60 in less than two months. Gwallon was extensively worked on the same lode, about 150 fathoms in advance of our 80. We are draining this ground, and fully expect to lay open a lasting tin mine in this direction. The 80 west, on Pope's lode, is producing saving work for tin. The 70 west, on Pope's lode, is worth 5l. per fathom. The two stopes in this level are each worth 7l. per fathom. The 60 west, on Pope's lode, is poor. The 40 west, on Moor lode, is producing saving work for tin. The 70 west, on Moor lode, is unproductive. No other change in the tutwork department. Some of our pitches have considerably fallen off in value, consequently our returns of tin will be less than usual for this month and next, after which we expect to fully make up the deficiency from the new discovery.

ROARING WATER.—Henry Thomas, March 23: The lodge (Grady's) west of caunter, in the 45, is looking much better, and, from present appearances, I have every reason to expect at no distant period a good orey lode, as far as we have driven the back, will pay well for stoping. The ore, yellow, grey, and purple, is exceedingly rich.

SOUTH CONDURROW.—J. Vivian and Son, Wm. Williams, March 20: The water is now drained to the 82. We have to-day set the 71 to drive west of King's shaft by six men, at 15l. per fathom, the takers to carry a width of 6 ft. of the south part of the lode, the which, for a width of 20 ft., is tinstone of profitable quality. In the 61, west of King's shaft, the south part of the lode on which we are driving, and carrying 5 ft. of it, presents a good appearance, and is worth about 10l. per fathom. In the stope in back of the 61 the lode has an average width of about 25 ft., and is composed of profitable tinstone throughout. In driving the 51 north, west of King's shaft, we have intersected three of the tributary branches of the tin lode, which produce good-quality tinstone, but we are continuing the cross-cut, as it is possible that the main part of the lode may be still before us. In the 51, east of Tye shaft, the lode is 2½ ft. wide, and presents a promising appearance. In the 20, east of Tye shaft, the lode is 1½ ft. wide, and produces some good-quality tinstuff. There is nothing worthy of remark in the other parts of the mine

SOUTH DARREN.—J. Boundy, March 20: We shall commence taking down the lode in the 70 west next week, and from present appearances we think it will yield well. There is no particular change in the value of the lode in the different bargains throughout the mine since our last report. The dressing operations are being urged on as fast as possible. The machinery is in good order.

SOUTH FOWEY CONSOLS.—F. Puckey, March 22: In the 30 fathom level cross-cut, driving north, we have cut a lode about 18 in. wide, which appears at the present point to be rather disordered, but letting out a great deal of water; this end will be driven east on the lode with all possible speed, when we expect it to improve. The ground in the south cross-cut is favourable for driving, and we hope to intersect a lode during the present month. The price for driving each end is 4l. per fathom.

SOUTH MERLLYN.—H. R. Harvey, March 22: Since we commenced operations the 40 has been extended south 3 fathoms 3 feet; the lode has yielded ore for the whole distance driven, varying in value from 4l. to 9l. per fathom, now worth 7l. per fm., and likely to improve, as the lode is embedded in a beautiful white limestone, with friable spar. The end is now driving by two men. The 40 north has been driven about 6 ft.; the lode presents a very favourable appearance for the production of ore as the level becomes extended. In driving this end we shall get under the ore ground seen in the winze, gone down in the bottom of the 30; the distance to drive will be about 28 fms., and I am of opinion we shall soon intersect ore in this level. The tribute pitch in the 30, north of Harvey's shaft, is worth 8l. per fm. We are preparing a parcel of lead, and shall sell the same in about one week from this. All the necessary buildings, &c., are completed.

— H. R. Harvey, March 23: The lode in the 40 south has considerably improved since my letter of the 22d.

STRAY PARK.—J. Thomas, J. Cock, March 24: Since the last report in the Journal we have forked 15 fathoms of water, making altogether 42 fms. forked since the account. By the next account, about three weeks hence, we hope, with fair success, to have reached the bottom, when we shall at once be enabled to increase our returns of tin, and also to sink the shaft and explore the bottom of the mine.

ST. JUST AMALGAMATED.—R. Pryor, T. Gundry, R. Wearne, March 22: Saveall's Lode: The men in the 110 and 100 are at present engaged putting in tramroad in the 76; consequently, there has been no change in either of those ends during the week. The lode in the 90, driving west of engine-shaft, is worth 5l. per fathom—a very promising lode. In the 62, driving west of cross-cut, on the south branch, the lode is also worth 5l. per fathom, and improving.—Pryor's Lode: The lode in the 62, driving east of cross-cut, is improving in its appearance and character, and producing good stones of tin; ground easy for progress. The lode in the winze sinking below this level is worth 8l. per fathom.—North Lode: The lode in the 40, driving east of north shaft, is worth 5l. per fathom.—Owl Lode: In the 40, driving north of Reddipper shaft, the lode is worth 5l. per fathom. The lode in the 20, driving north of ditto, has improved, and is now worth 8l. per fathom. The lode in the 10, driving north of ditto, is worth 7l. per fathom. The lode in the 10, driving north on branch, is worth 4l. per fm. The lode in the 20, driving east of shaft, on Wheal Widden lode, is worth 4l. per fathom. The lode in the 20, driving west of Wheal Widden shaft, on the north branch, is worth 6l. per fathom—a very kindly lode.

TAMAR VALLEY SILVER-LEAD.—John Goldsworthy, March 25: In the 57 cross-cut, driving east of Weston's engine-shaft, towards the Tamar Valley lode, the stratum is strongly mineralised, and good progress is being made. The lode in the 57, driving south, is 4 ft. wide—a strong, promising lode, and producing rich stones of silver-lead ore. The lode in the 47 south, so far as taken down, is 3 ft. wide, producing good saving work, and promising to improve. The laying of the tramroad in the 27, with other work, is progressing satisfactorily. The tribute pitches throughout the mine are without change. The dressing of our ore, and other surface work, is progressing satisfactorily.

TREREW.—March 24: We have cut through the lode in the 32; it is about 3 ft. wide, loose, speedy ground, with plenty of water, composed of spar, prian, and mundic; it is very much changed from the level above; although the lode is poor, it is much more kindly than in the 20; the ground is softer, with plenty of flookan. We have now put the men to drive south; this and the 20 must be pushed south, to get back under the lead seen in the adit.

WEST CARADON.—William Johns, N. Richards, March 22: Marina's shaft is sinking in the elvan, and fair progress is being made, taking this class of ground into consideration. We are glad to say a further improvement has taken place in the 30 east, on Allen's lode, which is now worth 2 tons of copper ore per fathom—a very pretty-looking lode. All other places are much the same as when last reported on for the general meeting.

WEST DRAKE WALLS.—T. Gregory, March 24: We are driving east and west on the course of No. 1 north lode, with a view of reaching the cross-course as quickly as possible. In the 40 cross-cut south we have intersected some small veins of quartz, containing mundic and copper, and water issues more freely from the end; there are indications of our getting near a lode.

WEST MARIA AND FORTESCUE CONSOLS.—Wm. Skewis, James Donnal, March 23: West Maria Lode: The lode in the 60 east is 3 ft. wide, composed of capel, mundic, and copper ore, worth 20l. per fm. The rise in back of the 60 is by the side of the lode; when taken down it was 2 ft. wide, worth 18l. per fm.; the ground is favourable, and good progress is being made. In Willesford's shaft, below the 50, the lode is 2 ft. wide, worth 16l. per fm.; we expect this will be holed to the rise in about three weeks. No. 1 stope, in back of the 50, is worth 6l. per fm., and No. 2 stope, 14l. per fm. The driving is by the side of the lode in the 40, east of Willesford's shaft; the lode will be taken down so as to give the particulars in next report. The lode in the rise in back of the 40, east of Willesford's shaft, is at present poor. No lode taken down in the rise east of Maria engine-shaft. In the 30 east the lode is from 3 to 4 ft. wide, looking more promising than it has been before at this level.

WEST PRINCE OF WALES.—W. C. Cock, March 23: The plat, &c., in the 30, at south shaft, will be completed by to-morrow morning, and we shall then commence driving west on the lode. I have set the end to-day at 50s. per fathom. The ground in the north shaft is gradually losing its redness, and there is no other change.

WEST ST. IVES.—Thomas Uren, jun., March 24: There is a great change in the cross-course; it is now full of mundic, and also getting very wet. I think we are approaching near another lode. We have about 10 fathoms more to drive to cut our south tin lode.

WEST TOLGUS.—March 24: We have again drained the water from the long level (the 50) and 1 ft. below. We shall have to stop the engine 2½ hours to-day to put on another pump, the last on this lift; this pump will bring the bottom of the lift 3 fms. below the 50, where we shall fix temporary bearers and cistern, and cut ground for bearers for dropping the other lift with all possible dispatch. The ground in Richard's shaft is still killas; no lode taken down since last report. We find that the water in the mine is falling off.

WEST WHEAL KITTY.—William Vivian, March 24: We are driving the middle adit end, west of western shaft, with six men, by the side of the lode. We are pushing on this end as fast as possible towards the cross-course, where we expect to meet with some rich tin ground. There is no change to notice in the stopes since our last report.

WEST WHEAL FRANCES.—J. Thomas, C. Craze, H. Rabling, March 24: Bailey's engine-shaft, sinking under the 120, produces a little tin. The 120, west of shaft, is worth 10l. per fathom. The winze under the 120 is worth, for 9 feet long, 35l. per fathom. The 108, west of shaft, produces a little tin. The 95, west of shaft, is worth 20l. per fathom. The 85, west of shaft, is worth 20 per fm. The 77, west of shaft, is worth 25l. per fathom. The 95, west on the south lode, is unproductive.

WEST WHEAL TREMAYNE.—S. Roberts, March 23: The engine-shaft is down to the 44; the men are now engaged in dividing and casing it down that level, which we think will be nearly completed by to-morrow, when they will commence to drive both east and west. In the rise in back of the 20, on south lode, there is no change to speak of. In the 20, on south lode, I feel much pleasure to be enabled to report a still further improvement in the lode, which is still enlarging, and has on its north side a leader of rich copper ore, 8 in. wide.

WHEAL AGAR.—E. Rogers, March 24: The cross-cut from the flat-rod shaft, at the 170, is being driven with all speed, but without meeting with any change. In the 130 engine-shaft we have opened far enough to resume the sinking, which we propose to do at once. The lode in the 110 is still influenced by the cross-course

WHEAL BULLER.—J. Inch, J. Brown, March 24: Last Friday being our setting-day, we set the following tutwork bargains:—Hocking's shaft, to sink under the 92, to nine men, at 24l. per fathom; the lode in this shaft is looking very kindly, letting out more water, and worth for tin and copper ore 12l. per fathom. The 70, to drive east of cross-course, on the north lode, to four men, at 12l. per fathom; this end is producing tin and copper ore, but not to value. A stope in the back of this level to six men, at 6l. per fathom; worth for tin and copper ore 10l. per fathom. A stope under this level, west of the cross-course, to six men, at 7l. per fathom; worth for tin 20l. per fathom. No. 2 stopes, under this level, to six men, at 5l. per fathom; worth for tin 15l. per fathom. A stope under the 60, on this winze, east of Knuckey's winze, to six men, at 6l. 10s. per fathom; worth for tin 12l. per fathom. A stope under the 60, west of Bartle's winze, to six men, at 5l. per fathom; worth for tin 9l. per fathom. The 92, to drive east of Steven's shaft, to two men, at 10l. per fathom; the lode in this end is unproductive. The 60, to drive west of Kistle's shaft, to two men, at 10l. 10s. per fathom; the lode in this end is worth 10l. per fathom. The 50, to drive east of the point of the horse, to four men, at 14l. per fathom; worth for tin 12l. per fathom. The stope in this level to take away a horse of ground for tin to four men, at 4l. per fathom; worth 7l. per fathom. The mine throughout is looking better, and the returns will increase in the next month.

WHEAL COURTENAY.—J. Gifford, March 24: On Saturday last we set the deep adit west, to drive by four men, stent the month, at 3l. per fathom; lode 1 ft. wide, and we have put two men to drive on a north part of the main lode, as a separate lode goes off in the north side of the level, some 70 or 80 fathoms behind the present end.

WHEAL CREBOR.—J. Gifford, March 24: On Saturday we set the 120 east, to six men, to drive by the side of the lode; stent the month, at 105s. per fathom. The 120 west, to six men, stent the month, at 5l. 5s. per fathom; lode 3 ft. wide, composed of peach, quartz, capel, and mundic, with occasional spots of ore, but not to value. The 96 fm. level cross-cut, to two men, stent 2 fathoms, or cut the lode, at 90s. per fathom. In the last 6 feet behind the end we have intersected two small branches, about 5 in. wide each, intermixed with mundic; the first almost perpendicular, the second underlying south 1½ ft. in a fathom. We do not think it is the Buctor lode, and we shall continue the cross-cut a few fathoms to prove it. No. 1 pitch, in back of the 84, to two men, at 8s. in 1l. No. 2, to two men, at 12s. in 1l. No. 3, to two men, at 10s. in 1l. We have put two men to drive the 108 east, but have not as yet set to them.

WHEAL CRELAKE.—Wm. Skewis, W. Hooper, March 24: The 86 is being driven in a north-westerly direction in order to intersect the branches seen in the cross-cut a short distance east from the end. In the cross-cut south from the 40 west the ground is of a firmer description than is generally seen in this mine, and thickly intermixed with spar. There is no change to notice in the cross-cut north at this level. The lode in the winze sinking below this level is 6 feet wide, worth 12l. per fm. No lode has been taken down in the 28 fm. level west for the last week. The lode in the rise in back of this level is 3 ft. wide, worth 18l. per fm., and in the stope 15l. per fm. The tribute pitches continue to be of much the same value.

WHEAL KITTY (St. Agnes).—S. Davey, W. Polkinghorne, March 19: In the 82, driving west of Holgate's shaft, the lode is 2 ft. wide, worth for tin 9l. per fathom.—New Shaft: Pryor's Lode: No change worthy of remark has taken place in this shaft, sinking below the 94, during the week. In the 94, driving west of new shaft, the lode is 2 ft. wide, worth for tin 30l. per fathom. In the 94, driving east of shaft, the lode is 2½ ft. wide, worth for tin 13l. per fathom. In the 82, driving west of shaft, the lode is worth for tin 13l. per fm. In the 82, driving east of shaft, the lode is still small and poor. In the winze sinking below the 82, west of shaft, the lode is worth for tin 24l. per fathom. In the 65, west of shaft, the lode is poor.—Caunter Lode: In the 82, driving north of shaft, the lode is worth for tin 10l. per fathom. In the 44, driving east of cross-cut, on the branch, north of Pryor's, the lode is producing saving work.

WHEAL MARY ANN.—P. Clymo, J. Harris, James Stevens, James Skeat, March 25: The cross-cut in the 240, at Clymo's shaft, is extended 6 fms. towards the lode. Nothing new to notice in the 230 north since the meeting. In the same level south the lode is 1½ ft. wide, worth 12l. per fathom. In the 220 fm. level north the lode is small and poor. In the same level south the lode is 2 ft. wide, worth 13l. per fm. In the 210 north the lode is 1 ft. wide, producing a little ore. In the same level south the lode is much the same as when last reported on. In the 200 north the lode is 2 ft. wide, worth 4l. per fm. In the same level south we have intersected the main slide, and put the men to drive on a branch which split off from the lode about 4 fms. behind the end. In the 190 north the lode is 3 ft. wide, producing stones of ore. The stopes and pitches are producing much the same as usual. We have this day sold two parcels of silver-lead ore. No. 1 (computed 50 tons) to Messrs. Stock and Co., at 24l. 4s. 6d. per ton, and No. 2 (computed 48 tons) to Messrs. the Trustees of the Treffry estate, at 13l. 10s. 6d. per ton.

WHEAL SPARNON.—W. Tregay, March 20: We are engaged putting a stope over the back of the 30 north cross-cut in order to ventilate that level, for the intersection of the north lodes. On these lodes, lying between this mine and Pedn-an-drea, we have good prospects, and purpose rapidly pushing the work.

WHEAL UNY.—Samuel Coade, Matthew Rogers, March 20: We are forking slowly below the 110, about 3 feet in 24 hours, but we intend putting in a larger pole in the 110 next week, when we shall fork faster, and we have fixed a small lift in the incline shaft to supply this pole. We are sorry we cannot sell more tin, but we hope soon to increase our returns.

THE MINING ATLAS.

The Atlas about to be issued by Mr. SPARGO, of Gresham House, is one of the most beautiful, as well as useful, publications of the day. It is illustrated by over ninety maps, and sections; the former showing the geological, topographical, and mineral characteristics of various portions of the British Isles, and the great mineral regions of America; the sections revealing the nature, workings, and present condition of the most famous and successful mines. Such a publication has long been a *desideratum*, we, therefore, welcome its introduction as most opportune.

The Maps are beautifully executed, and where a country is depicted which, as Cornwall or Devon, has a number of mines in actual working, the orological delineations by which the limits of each property is marked are defined with distinctness, and the most painstaking, careful, and discriminative accuracy. It is not too much praise to bestow when we say that these maps are a great public advantage, as well as a professional boon to those whose calling is in the mine, or in connection with it. The want of good maps, plans, and sections in past generations of miners was an impediment to their success; and when in recent times a more vigorous spirit of enterprise was aroused, and in consequence many mines which had been closed were reopened, facilities for the new workings would have been very much promoted, if the plan and history of the previous operation could have been obtained. In this way Mr. Spargo's work will have a historical interest, enabling the miners and mining engineers of a future time to take a complete and intelligent retrospect of what was done, and the *modus operandi*, in connection with our great historic mines.

The Atlas is not only what its name imports, it is a volume of letterpress as well—scientific, descriptive, and historical. The science of mining is taught, the mode of approaching a great undertaking, of commencing and of carrying on operations, are all described. The technicalities in use are interpreted, and, in fine, the mysteries of the profession unveiled. There are very valuable statictics in connection with this portion of the book. The chief mines of the country are described, both as to their locality and their interior condition, The history of our older mines is pleasantly related.

As a geological volume the Atlas is most interesting. The geological peculiarities of the British Isles, and of various regions in the western hemisphere, are the subjects of luminous and learned essays, which will be of utility, not only to those who are not skilled in the science, but also to those who are. Chap. I., which is "Introductory and General," is remarkably well written, select and chaste in language and imagery, and full of information. Chap. II.—"How Mines are Worked; and Plans and Sections are framed."—will be chiefly perused with attention by persons connected with mines as workers or investors. Chap. III.—"General Descriptions of the Mining Regions of Great Britain, of which Maps and Plans are given,"—is a fine topographical as well as mineralogical treatise. The same may be said of the portion of the work which defines the outlines of the great mineral countries abroad, and which examines their characteristics, and their prospective importance.

We recommend the work for general perusal, as well as a *vade mecum* for miners and agents of mines. There are many topics touched upon of great general interest, and which enliven the whole work; so that while it is an Atlas, a hand-book, a miners' guide, and scientific treatise, it is as interesting as a fairy tale or romance. Indeed, we know of no work of fiction so likely to fascinate an intelligent mind as this "true account of things that are true," and of solid importance.

The reader will be very much entertained, as well as instructed, by the notices of our English south-western peninsula, topographical, geological, mineralogical, and historical. That noble old county is described in its long, but so far unsuccessful, battle with the sea, which now washes many miles once a barrier to its aggression. The extraordinary variety of productions in this part of England is luminously set forth. It is not, as many suppose, a region of tin and copper merely, various other mineral substances enrich it, and their number, nature, and value are detailed in the letterpress portion of the volume. Among the many striking things related of Cornwall is its ancient history, when, about the time of the Prophet Ezekiel, Marazion was literally the Jews' Market, and Phœnician merchants exchanged at its quays the cloths of Tyre and Sidon, and "the precious things of the East," for the great metallic products of "the Tin Isles." The early civilisation of the peninsular portions of our country is shown to be superior to that of other parts of Western Europe; and, in fact, a halo of antique historic light is thrown around the granite shores and metallic rocks of Cornwall.

Notwithstanding the wide range of mineral enterprise in that part of our island, and the southern confines of Devon, not a mine has escaped Mr. Spargo's attention, and whatever by its importance demanded it is graphically sketched. There is a detailed account of the Botallack, into which the Prince and Princess of Wales and their retinue descended some time ago. If the description occurred in the "Arabian Nights Entertainment," or some such necromantic performance, it would be regarded as a fine and bold effort of romantic genius; but it is pure matter of fact, however much it may be matter of wonder. This gigantic mine, penetrating to so vast a depth, and yielding such treasure, is a marvellous monument of British power and perseverance. Far out under the sea the miner plies his tools, and extracts the precious ore; so that he hears the rocks driven on the floor of the ocean above him by the tempest-propelled waters.

The account of mining operations in Cardiganshire is also of romantic interest. Where the lead and silver-lead ores are now raised the Romans worked, and left behind the traces of their labours. A graphic notice is given of the mine from which Sir Hugh Myddelton extracted the wealth by which he made the New River, which now supplies such a multitude of the inhabitants of London with water. Probably, no part of the Atlas is more pleasant or instructive reading than the account of the mineral wealth in the western section of the American Continent. According to the author, the Pacific slopes of the Antilles, Cordilleras, and Rocky Mountains contain mineral deposits so vast that there can be taken thence sufficient supplies for the consumption of the whole world for an incalculable extent of time. The map of Colorado is particularly deserving of attention.

We dismiss the work for the present, by repeating our commendation and our expectation that it will have many readers.

STANNARY AMENDMENT.—It has frequently been urged that mining enterprise in Cornwall and Devon could be carried on with much greater advantage to all concerned if the Stannaries laws were altogether repealed; and, perhaps, the greatest recommendation of the Stannaries Amendment Bill now before Parliament is that it renders the cost-book law more nearly in accordance with the law of public companies generally. In an interesting pamphlet upon the subject, Mr. W. J. Rawlings, of the well-known firm of Harvey and Co., of Hayle, remarks that the impression which a perusal of the report in the *Times* conveys, on the occasion of its introduction to the House, was far too flattering to the mining community; for so far from its provisions and merits being well understood, and unanimously approved of, it is extremely probable that not ten *miners* at this moment have ever seen or heard of the clauses now printed, or have half that number entertained the remotest idea of the principles embodied, the anomalies introduced, or general effect that will be produced should this Bill become law. Mr. Rawlings explains the merits of the Cost-book System as it at present exists, and points out that the proposed Bill would deprive it of those merits, without affording any equivalent compensation. Mr. Rawlings' reason for directing attention to the Bill is that the promoters of it, when its agitation began, declared publicly that the Hayle Foundry firm had more interest in mines, and had more knowledge of the wants of miners, than any other firm in Cornwall. The pamphlet contains an exhaustive review of the subject.

THE FINANCIAL COMPANIES OF LONDON.—The March issue of "The London Banks, Credit, Discount, and Finance Companies" has just been published by Mr. Edwin Utley, or Threadneedle-street. The book is too well known to need description. It contains all the particulars likely to be required by the man of business, and a large amount of general commercial information, the whole having been carefully corrected up to the moment of publication.

CAPITALISTS' LIABILITIES IN PUBLIC COMPANIES.—That the limited liability principle has not fulfilled the expections of its promoters is beyond question, and there is a very widely-spread feeling that much of the fearful distress, and almost unexampled depression of trade, during the past few years should be attributed to the introduction of the system of partnership which restricted a capitalist's liability to contribute all he possessed for the payment of any losses that may have been incurred in the effort to obtain him profits. The cases of individual hardships have probably been about equal under the unlimited and under the limited liability systems, and it is difficult to determine which of the two has proved most efficient in promoting industrial enterprise, so that it scarcely follows as a consequence that because the panic of 1866 happened, therefore our partnership law is at fault; yet this is the only inference likely to be drawn by those who accept, as logical, the arguments contained in the pamphlet entitled "Partnership Law Legislation and Limited Liability reviewed in their relation to the Panic of 1866," by Mr. JOHN HOWELL (just issued by Mr. Effingham Wilson, of the Royal Exchange). Mr. Howell does not appear to have read so carefully as could be desired the law of partnership, as it at

present exists in England, or he would have discovered Acts of Parliament now in force permit of the formation of every kind of partnership legal in France, as well as of some others. The main object sought by Mr. Howell appears to be to procure the amendment of the Act relieving from liability those who lend money to traders for consideration other than a fixed rate of interest (28-29 Vic. c. 86), and to this end he gives the draft of a proposed bill for authorising registration of mixed partnerships by a different process to that pursued at present. Mr. Howell's observations are highly interesting, and as far as regards the working of the liability system unquestionably true, but his proposed bill appears open to the same objection as that which it is intended to supersede—it prevents most absolutely the transfer of the lending partner's share, and thus places the lender in a worse position than a sleeping partner in a common law partnership. This restriction is incompatible with existing commercial notions, and Mr. Howell should at once modify it.

GREAT WHEAL VOR.—There can be no better proof of the extraordinary productiveness of this property than the fact that, after having yielded such large quantities of tin for so many years, the returns for the last quarter amounted to no less than 148 tons, realising 10,463*l.* Therefore, the shareholders may well be alive—as they appear to be—to the importance of the improvements opening out in the western portion of the sett, which has long been regarded as ground likely to yield results equally as satisfactory as those of the old mine. The quarterly general meeting was held on Wednesday, under the presidency of Mr. George Noakes, F.G.S. As will be seen by the details which appear in another column the accounts made up to the present time showed a balance in favour of the mine of 4516*l.* 9s. 6d., out of which a dividend of 1477*l.* (5s. per share) was declared, leaving a surplus balance of 3039*l.* 9s. 6d. The water, which from accidents to the underground machinery, had risen in the mine, is now drained to the bottom. The reports were considered exceedingly encouraging, inasmuch as they indicated such a marked improvement in the general prospects of the mine.

SOUTH MERLLYN.—The latest accounts from the mine show that the promises for the production of lead are being fully realised, as there is now nearly ready a small parcel, which will be sold in course of the coming week, and the lode increasing in value the further the levels are driven, more particularly in the 40 south, a most important point for the future of the mine.

TIN VALLEY.—This mine, to which attention was drawn last week, has met with considerable favour, the shares having been readily taken by investors, not apparently as a speculation, but as a *bona fide* investment. The latest advices state everything is being done to facilitate the opening up of the mine, erecting the machinery, &c., while operations are at once being carried on to dress the halvans, of which there is plenty on the surface.

GOLD MINING IN BRAZIL.—The advices by the last mail show that the operations at St. John del Rey Mines during January resulted in a considerably less loss than for many months previously, proving the correctness of the statement made by Mr. Gordon some time since, that there was reason to believe the attainable income would meet the current outlay. The Don Pedro realised a profit for January of 6286*l.*, as against 2700*l.* during January, 1868, and 1119*l.* during January, 1867. The produce cleared up for the first division of February was 7821 oits. The report is of the most satisfactory character, stating that richer work has before been taken out, but obtaining it so auriferous, and at so deep a horizon, is a most promising and encouraging feature for the future of Maquine. At Tambor, so favourably referred to by Mr. Henry Haymen at the recent meeting, the jacotinga is described as being most promising in appearance, although as yet not auriferous. The reports of Capt. Thomas Treloar upon Taquaril and General Brazilian Mines are awaited with considerable interest, the more particularly as, with reference to the property to be acquired by the last-named company, Capt. Treloar has stated he is quite certain that, although the Don Pedro Company is a great success, the mines of the General Brazilian Company will, under proper management, give even greater results. It is understood that at the date of the last advices Capt. Treloar was at Rio, completing the necessary legal forms.

THE GOLD MINES OF AUSTRALIA.—We learn that the agent in London for the disposal of shares in the Winter's Freehold Company, and Great North West Company, has everything now in a forward state, and the prospectus will be placed before the public during next week. These well-known mines, which are situate at Ballarat, the metropolitan gold field of Victoria, have an aggregate area of nearly seven square miles, the Winter's estate being a freehold, and its title a Crown grant. It is almost supererogatory to speak of the mines of Ballarat as the richest gold mines in the world, yet withal few even of those who admit that fact have any really definite idea of the wealth and resources of this the newest and most progressive of all modern and progressive cities. As some criterion of the value of the two properties shortly to be submitted to English capitalists, it may be remarked that—

	Paid-up capital.		Dividends.	
Nineteen adjacent companies, from early in 1860 to end of 1867, with Twelve of these companies for the year ending Dec., 1868, besides clearing all expenses, with	£280,355 12 4 returned		£2,127,026	1 4
	—	„	438,386	0 0
Total	£280,355 12 4		£2,565,412	1 4
One of the number—the United Extended Band of Hope, now the Band of Hope and Albion Consols—from June, 1864, to March, 1868, with	64,000 0 0 returned		446,400	0 0

Being an average exceeding 170 per cent. per annum.

In our next issue we shall be in a position to give a full account of these mines, and propose to follow it up with a series of articles, which will appear from time to time in our columns, giving authentic information of the progress making in the gold fields of Victoria. We see the offices of the new company are at Dicker's Australian and London Mining and General Agency, 4, Royal Exchange-avenue.

AUSTRALIAN UNITED.—The advices received by the mail this week from the local managing director are exceedingly favourable. In the cross-cut at Daukes's shaft they have met with Cattle's lode, and Mr. Kitto states, "Although we have driven 30 ft. since it was cut we are not yet through it. Gold is visible in considerable quantities so far as we have gone; it is in much coarser (larger) pieces than in the bottom level of the old shaft, which is 10 fathoms above, and more regularly distributed through the stone. I have before me now some scores of beautiful specimens of quartz and gold, far surpassing anything previously obtained from the mine. I anticipate some magnificent returns before the end of the present year. What we now have before us more than confirms any statement made in favour of this property before it was purchased by its present owners." Nearly the whole of the machinery had been safely delivered at the mines, and the engine at the Duke of Cornwall was expected to be set to work by the end of March. Active operations had been commenced at the Central Mine, where the prospects were also good. We must congratulate the Mining Association on the fine prospects of one of their first children (in which we understand they have a considerable interest), and all parties concerned, on the energy and ability which have been displayed.

BRAGANZA GOLD MINING COMPANY (Limited).—The antecedents of the Morro Tabac Mine, belonging to the Braganza Company, would seem to fully warrant the confidence which is felt in a prosperous future for it. We are informed that the property originally belonged to one Senhor Isidoro Ferreira, who worked it in the rudest possible way, by simply breaking the ore with small hammers, and conveying it in a hand-cart to the nearest stream for washing, but from which small and primitive operations it is well known that he made good profits. It was bought of him by the principal engineer to the Cata Branca Company, whose mine was only two miles distant. This gentleman bought it with the view of working it himself, and it was he who drove the two levels, and executed the other preliminary works shown in the section at the office. But having good employment offered to him under the Brazilian Government, he removed to Rio Janeiro. Captain Colesworth, R.N., the chief director of the Cata Branca Company, wished to purchase the Morro Tabac for that company; but Mr. Carpenter still hoped to work it on his own account, and refused to sell it, until he found that his other profitable employment would not admit of his devoting the necessary attention to it. In selecting this property, Mr. Carpenter was influenced not merely by the rock being very rich in gold, but by the favourable lay of the land for mining purposes, by there being an adequate supply of water, by its being in a neighbourhood where labour can be readily obtained at average wages, and by its being near villages where provisions can always be obtained at moderate prices—in fact, all the provisions which go to the St. John del Rey Company's Mine, Morro Velho (where upwards of 1000 hands are employed), pass this property, along the Cata Branca road, as seen in the map and plan in the company's office. The six bags of the ore, taken from different parts of the lode, and which were assayed by Messrs. Johnson, Matthey, and Co., yielded the following results:—

No. 1	11·500 ozs. per ton of 20 cwts. of ore (2240 lbs.)		
No. 2	21·250	ditto	ditto ditto
No. 3	22·750	ditto	ditto ditto
No. 4	30·225	ditto	ditto ditto
No. 5	22·250	ditto	ditto ditto
No. 6	25·600	ditto	ditto ditto

being an average of rather more than 22 ozs. of gold to each ton of ore, which would be equal to more than 70*l.* per ton. This large produce seems to justify the following statement, made by Captain Williams, in his report:—"In all my travels through South America and Australia, I never saw so large blocks of quartz from any lode so rich in gold as those from this mine."

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Prof. Warington Smyth's Lectures at the Royal School of Mines—On the Coal Cost of Steam Power, by Mr. Thomas Craddock—Meetings of Public Companies: Economic Life Assurance Society; London Bank of Mexico and South America; Great Wheal Vor Mining Company; Chiverton Mining Company; The Javali Company—Foreign Mines and Mining—Foreign Mine Reports—Australian Mine Reports, &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MARCH 25, 1869.

COPPER.	£ s. d.	£ s. d.
Best selected..p. ton	78 0 0-	79 0 0
Tough cake and tile	76 0 0-	—
Sheathing & sheets.	79 0 0-	80 0 0
Bolts	81 0 0-	—
Bottoms	82 0 0-	83 0 0
Old (Exchange)	65 0 0-	70 0 0
Burra Burra	81 0 0-	—
Wire.....per lb.	0 1 0	- 0 1 0½
Tubes	0 0 11¼	- 1 0

BRASS.	Per lb.
Sheets .....per lb.	9d.- —
Wire ..... „	8¼d.-8½d.
Tubes ..... „	10½d.-11½d.
Yellow Metal Sheath.p. lb.	7d.- —
Sheets ..... „	6¾d.- —

SPELTER.	Per ton.
Foreign on the spot	£21 5 0-21 10 0
„ to arrive..	21 10 0- —

ZINC.	
In sheets	£27 0 0- —

TIN.	
English blocks	127 0 0
Do., bars (in barrels)	128 0 0
Do., refined.....	133 0 0
Banca	132 0 0
Straits	£129 0 0-130 0 0

TIN-PLATES.*	Per box.
IC Charcoal, 1st qua.	1 8 0- 1 10 0
IX Ditto, 1st quality	1 14 0- 1 16 0
IC Ditto, 2d quality..	1 7 0- 1 8 0
IX Ditto, 2d quality..	1 13 0- 1 14 0
IC Coke.....	1 4 6- 1 5 0
IX Ditto	1 10 6- 1 11 0
Canada plates, p. ton	13 10 0- —
Ditto, at works	12 10 0- —

IRON.	Per ton.
Bars Welsh, in London	6 10 0- 6 15 0
Ditto, to arrive	6 10 0- 6 12 0
Nail rods	7 2 6- 7 5 0
„ Staffd. in London	7 12 6- 8 10 0
Bars ditto	7 10 0- 9 10 0
Hoops ditto	8 0 0- 9 15 0
Sheets, single	9 0 0-11 0 0
Pig No. 1, in Wales ..	3 15 0- 4 5 0
Refined metal, ditto..	4 0 0- 5 0 0
Bars, common ditto..	6 0 0- —
Do. mrch. Tyne or Tees	6 10 0- —
Do., railway, in Wales	6 0 0- —
Do., Swed. in London.	10 0 0-10 5 0
To arrive	10 5 0- —
Pig, No. 1, in Clyde ..	2 14 0- 3 0 6
Do. f.o.b. Tyne or Tees	2 9 6- —
Do. Nos. 3,4, f.o.b. do.	2 6 6- 2 7 0
Railway chairs	5 10 0- 5 15 0
„ spikes	11 0 0-12 0 0
Indian Charcoal Pigs, in London, p. ton..	7 0 0- 7 10 0

STEEL.	Per ton.
Swed., in kegs (rolled)..	— - -
„ (hammered) ..	15 5 0-15 10 0
Ditto, in faggots	16 0 0- —
English, spring	17 0 0-23 0 0
QUICKSILVER (p. bottle)	6 17 0- —

LEAD.	Per ton.
English Pig, com.....	19 7 6-19 10 0
Ditto, L.B.....	19 12 6- —
Ditto, WB	21 0 0- —
Ditto, sheet.....	20 5 0- —
Ditto, red lead	21 0 0- —
Ditto, white	27 0 0-30 0 0
Ditto, patent shot....	22 10 0-23 0 0
Spanish.....	18 17 6-19 0 0

* At the works, 1s. to 1s. 6d. per box less.

REMARKS.—The Metal Market has been moderately active during the past week, although it has not yet quite returned to the liveliness it displayed a short time since. However, we fully anticipate that a recurrence of this energy will take place ere long, as everything seems to indicate a good and increasing demand springing up for metals generally as the season becomes more advanced. The Easter holidays will, doubtless, cause a little cessation of business, as is usually the case; but after they have passed matters will return to their former activity. Prices still maintain a firm appearance, and in some instances are looking rather more favourable, while in the case of one important metal, in which they have lately rather drooped, they are now beginning to assume a more encouraging position. The market generally may be considered as looking very satisfactory, with every prospect of becoming even still more so. The accounts received from India by the last mail are, upon the whole, rather more favourable as to metals generally, more especially from some parts, and we may, therefore, look for a still improved demand arising, and of orders becoming more numerous, although they have already very considerably increased. The money market continues to show decidedly greater easiness, which will, no doubt, have the effect of encouraging speculative operations in the market, which have already tended to add much liveliness to business; and, should they go on with anything like freedom, will tend to greater activity. The demand from the United States is now very satisfactory, and further improvement is still looked forward to, while from the Continent the orders arriving and in anticipation have much increased.

COPPER.—The market is now presenting a rather firmer appearance, and it is not easy to buy under smelters' prices. Business has been done in Chili bar at 71*l.* cash, and 72*l.* 10s. for arrival; ores are quoted at 14s. 3d. per unit.

IRON.—In Staffordshire the accounts from the works are rather more favourable. The demand for rails, sheets, hoops, and nail rods is fair, while, however, the plate and bar mills are rather short of orders. The Preliminary Meeting of Ironmasters was held at Birmingham, on Thursday, but no alteration was made in list prices. In Welsh the trade is moderately active, the rail mills being kept tolerably well employed. Large shipments continue to be made to the United States, and the orders still waiting execution on their account indicate that a good business will be done during the present year. An improved demand is anticipated from several of the continental markets, and already enquiries are becoming more numerous. Bars are in moderate request, chiefly for the European markets. Russian advices show no change. In Swedish iron the enquiry continues good, but there is not quite so much doing at present. In Scotch pigs a fair business has been done in warrants, and shipments show a considerable increase over the corresponding period of last year. Prices have fluctuated very little during the week, the last price received from Glasgow being 52s. 9d. cash.

LEAD.—A good business is still doing, and several enquiries are in the market; prices remain very firm at the quotations.

TIN.—Advices have been received by the East India mail of the shipment of about 280 tons Straits tin for this country, and 72 tons for New York. The market remains steady, at 129*l.* to 130*l.* cash, but the amount of business transacted has been only limited. English remains firm at the late advance.

SPELTER.—The market has become much less active, and transactions are not of any importance. The quotation for parcels on the spot is now 21*l.* 5s. to 21*l.* 10s.

TIN-PLATES.—Additional firmness is evinced in quotations, and many of the makers are asking higher prices.

STEEL.—A fair business still doing in foreign. QUICKSILVER in limited request.

THE COPPER TRADE.—Messrs. James and Shakspeare—By private contract 500 tons of regulus were taken at 14s. 1½d. per unit, 200 tons high produce ore at 14s. 3d., both lots being for distant arrival. The Swansea Ticketing for ore on the 23d. inst. went off at an average of 14s. 2d. per unit., being an advance of 2d. on that of the 2d. inst. In Chili bars we note sales of about 600 tons, chiefly cash lots, at 70*l.* 10s. to 71*l.* 15s. per ton, arrival parcels fetching 71*l.* to 72*l.*; buyers, however, showed so evident a disposition to go in heavily at the lowest rates that holders, as a rule, have withdrawn from the market, and are not disposed to sell freely even at our list quotations. It will thus be seen that in a comparatively dull time only about one-tenth of the supposed available stock was really to be obtained at the nominal market rates, the above-mentioned business being alone sufficient to establish an advance of about 1 per cent.; and there is now so little offering that purchases of a further and similar quantity would apparently suffice to cause a further rise of 1 to 2 per cent. It is certainly to be regretted that in such an important metal as copper no reliable statistics are to be obtained as to the total stocks of foreign lying in the chief out ports, and the trade, therefore, fluctuates according to the impression produced by the quantities advised bi-monthly from Chili as chartered for European ports; when the stuff reaches this side everything is left to conjecture, there being no satisfactory means of ascertaining whether the consumption keeps pace with or exceeds the supply. For Australian sorts the demand continues dull; quotations, nevertheless, are slightly better than at our last issue. A moderate enquiry has sprung up for English manufactured, and a few orders have lately been given out for export both to Russia and India; smelters continue to hold tough for an advance on their nominal quotations.

Messrs. Vivian, Younger, and Bond—The principal feature in the copper market since our last has been dulness, notwithstanding which the price of bars has rather improved, and the tone of the market at the close is also a trifle better. About 600 tons Chili bars have changed hands at 70*l.* 10s. to 71*l.* cash, and the latter must now be considered the lowest price. For arrival even 72*l.* 10s. is said to have been paid for a very distant parcel, but buyers cannot be found over 72*l.* in the ordinary way. A cargo of 500 tons regulus was bought at 14s. 1½d., and some Chili ore at 14s. 3d., both to arrive. The holders of Chili produce are much more difficult to deal with than was the case early in the year, and it is clear that very little buying would force the price up considerably. On the other hand the general demand for fine foreign and English copper is exceedingly small, less than it has been for a long time—and we think more orders must come for these descriptions of copper (which are now at a relatively cheap price), before we can see any considerable and permanent improvement on current rates.

The MINING SHARE MARKET continues active, and in three or four mines a considerable rise has taken place in prices. The mines mostly dealt in have been Wheal Buller, West Basset, West Frances, East Grenville, Grenville, Great Wheal Vor, Great Laxey, New Lovell, West Chiverton, Wheal Agar, Mineral Bottom, Cook's Kitchen, Providence Mines, South Condurrow, Tincroft, West Seton, Wheal Chiverton, Prince of Wales, Seton, Wheal Uny, and a few others. Gold mining companies have not been quite so firm. Wheal Buller shares have advanced 6*l.*, and leave 12½ to 15. We do not hear of any change at the mines, but the junction of the two lodes cannot be far off. Bedford Consols, 12s. 6d. to 15s.; Bedford United, 37s. 6d. to 42s. 6d.; Chiverton Moor, 3 to 3½; Chontales Gold, 25s. to 30s.; Cook's Kitchen, 15 to 16. West Basset shares have advanced from 15s. to 35s., 40s., and in good demand. From 1854 to 1865 the mine paid 159,600*l.* profit as a copper mine. In some years the dividends exceeded 20,000*l.* a-year (the highest, in 1856, was 23,850*l.*), and shares were at 40*l.* each. The present rise, we understand, is owing to the report that while so rich for copper the tin ground was neglected, and this, at the present price of tin, will work at a good profit. One report we have seen estimates the tin ground already laid open above the 65 at 30,000*l.* At the meeting, on Wednesday, the accounts showed a balance in hand of 372*l.* 8s. 7d. The agent estimates the returns for the next two months, from 32 heads of stamps, at 12 tons of tin per month, which will leave a profit. Arrangements, however, are being made to erect 16 additional heads, so as to make up 48 heads, with which, it is said, 20 tons of tin per month can be returned. The monthly costs have been heavy of late, as the stamps and erection of them have been charged.

Wheal Grenville, 49s. to 51s.; at the meeting, on Tuesday, the accounts showed a balance in hand of 433*l.* 14s. 7d., and assets over liabilities of 273*l.* 3s. 3d. The tin sold during the quarter realised 2302*l.* 13s. 10d., and the agents expect to sell the same quantity during the coming quarter. The 90 fathom level cross-cut north has been driven from the main lode 47 fathoms 5 feet towards the South Condurrow lode, which is considered to be not many fathoms ahead. This is an important point in the mine. South Grenville, 4s. to 6s.; at the meeting, held on Tuesday, a call of 2s. per share was made; the accounts showe a balance of liabilities over assets of 63*l.* 7s. 10d. Since the last meeting a lode has been intersected in the 42 fm. level, 2 feet wide, that contains a little copper, and which has a strong and masterly appearance. This has been opened upon 15 feet, and driving at 8*l.* per fathom. Drake Walls, 20s. to 22s. 6d.; East Basset, 6 to 8; East Caradon, 8 to 8¼; East Lovell, 9 to 9½; Frank Mills, 3¾ to 4; Frontino and Bolivia, 13s. to 15s. Great Wheal Vor shares have risen to 15, 16; at the meeting the accounts showed a profit on the quarter of 1742*l.* 17s. 7d., and a dividend of 5s. per share was declared. The tin sold during the quarter realised 9989*l.* 14s. 5d. East Grenville, 5⅞ to 6¼; the 55 east has met with a "squeeze," but is opening out again. Great Laxey, 19½ to 20; Herodsfoot, 44 to 46; Mineral Bottom, 3¾ to 4; New Lovell, 2⅞ to 2⅞; North Crofty, 20s. to 22s. 6d.; North Treskerby, 16s. to 18s.

Marke Valley, 8⅜ to 8⅞; the ends on Marke lode are worth 5 tons of copper ore per fathom. On Rosedown lode 15 tons per fathom in the aggregate. Prince of Wales, 20s. to 22s. 6d.; Providence Mines, 40 to 42; Rosewall Hill and Ransom, 25s. to 30s.; South Condurrow, 23s. to 25s.; South Herodsfoot, 20s. to 22s. 6d.; Stray Park, 7½ to 8½; Tincroft, 18 to 19; Trumpet Consols, 20 to 22; West Caradon, 4½ to 5½; West Chiverton, 51½ to 52½; West Frances, 50 to 52½; West Prince of Wales, 2s. 6d. to 3s. 6d. Don Pedro del Rey, 4½ to 4¾; the produce for January is 19,968 oitavas of gold, value 8486*l.*; cost of working, 2200*l.*; profit for the month, 6286*l.* West Seton, 195 to 205; Wheal Agar, 25s. to 30s.; Wheal Chiverton, 3¾ to 4; Wheal Crebor, 10s. to 12s. 6d.; Wheal Mary Ann, 18 to 19; Wheal Seton, 70 to 75; Wheal Uny, 3½ to 3¾; Taquaril, 12s. to 14s.; General Brazilian, 15s. to 17s. Devon Great Consols, 290 to 310; the directors have this day declared a dividend of 4*l.* per share (4096*l.*), being the profit on two months, and leaving a balance in hand of 12,068*l.* 1s. 2d.

We understand the Stock and Mining Exchanges will be closed till Tuesday morning.

The Market for Mine shares on the Stock Exchange in the early part of the week was decidedly flat; on Thursday an improvement set in, and prices advanced. Del Reys have risen to 18, 18½, on the better reports from the mine. General Brazilian firm, at 5s. to 6s. Taquaril Gold, after falling to 3s. 9d., 4s. 3d., on market operations, rose to 4s. 6d., 5s. 6d. prem., and firm at quotations. Don Pedro steady, at 3⅞ to 4⅛; Rossa Grande, ⅛ to ¼ prem.; Sao Vicente, 1-16 to 3-16 prem.; Anglo-Brazilian, ⅛ to ¼ dis.; Chontales, 1½ to 1⅝; Port Phillip, 1⅜ to 1⅝; Frontino shares are less firm, at 12s. 6d. to 13s. 6d.; Yudanamutana, 1⅜ to 1⅝; Rhymney Iron, 6½ to 6¾, and in demand. Business in English as well as foreign descriptions is now chiefly confined to the Stock Exchange. Van shares have been largely dealt in, closing at 22 to 23; the lode in the 30 fm. level cross-cut has been driven in 3 ft., worth 3 tons of lead per cubic fathom; the lode is 50 to 60 ft. wide. Vor shares rose to 16 buyers, but close 15 to 15½, ex div.; Great Laxey shares have been largely dealt in, at 19½ to 19¾; Prince of Wales, 21s. 6d. to 22s. 6d.; Chiverton, 3½ to 4; West Chiverton, 51½ to 52½; East Caradon, 7⅞ to 8⅛; Marke Valley, 8⅜ to 9; New Lovell, 1⅜ to 1⅝. Glan Alun, 13s. to 14s.; the water is out of the mine, and the wheel is now completed.

IRISH MINE SHARE MARKET.—The approach of the Easter holidays considerably diminished the ordinary course of dealings in shares, and mining securities were not exempt from this influence. Killaloe Slate Quarry shares continued to be sold at 17s. (20s. paid); General Mining Company for Ireland (6*l.* 10s. paid) were done at 12s. 6d., or a further reduction of 2s. 6d. from last week's prices. Wicklow Coppers (2*l.* 10s. paid) quote this week at 11*l.* 17s. 6d., holders asking 12*l.* A dividend of 5s. per share for the last account half-year, being the same as the previous dividend, and at the rate of 20 per cent. per annum, has just been announced, with a balance to the credit of next half-year's profit and loss account of 290*l.* Mining Company of Ireland shares (7*l.* paid) have slightly advanced, having been done on an average of 11*l.* 15s.

At the requisition of Messrs. John Campbell, Richard Martin, Patrick Byrne Darcey, Patrick Kane, and William Barker, directors of the Mining Company of Ireland, the shareholders of this company held an extraordinary general assembly on Monday last, to consider the resolution proposed by the directors, and published by us last week—"That the directors be authorised and requested to proceed with the suit now pending in the Court of Chancery, to obtain the benefit of the purchase of the Berehaven Mines for the company, and to take all such other proceedings as counsel shall advise for the same object. Further, that in the event of success in the said proceedings, the directors be authorised to raise the capital necessary for completing the purchase as they shall think most advisable." The Secretary read at length the opinions given on the pending dispute by Mr. Lawson, Q.C., (now Judge Lawson), Mr. Isaac Butt, Q.C., and Mr. G. Fitzgibbon, in which these eminent counsel say, *inter alia*—"We have met in consultation, and consider the right of the Mining Company of Ireland in relation to the recent purchase of the Berehaven Mines by Mr. Robert Heron and Mr. Samuel Bewley, junior. We are of opinion that the company can claim the benefit of the purchase, on the ground that the purchasers held a fiduciary position towards the company, and are accountable for any advantage obtained by them. If the purchase is considered valuable, we advise that a Bill may be filed in Chancery by the acting secretary on behalf of the company, praying that the purchase may be held

in trust for and assigned to the company. The filing of the Bill must be previously authorised by the board, and it must contain an undertaking to pay the price agreed on by the present purchasers, and to accept all the responsibility of the purchase; but if the suit is successful, the board may afterwards sell or otherwise deal with the mines, as they think most for the benefit of the shareholders. All the persons now believed to be interested in the purchase, and the three directors who gave authority to Mr. Heron to buy the mine on their behalf, should be named the defendants." This opinion refers to the case as it stands at the last half-yearly meeting of the shareholders. In addition to this, the opinion of Messrs. Jullett, Q.C., and Fitzgibbon was read. It is dated the 2d of March last, and refers to the case as it now stands, after an answer was put in by the defendants, and further evidence has been collected. It states:—"We are informed that it is intended to lay our opinion before a general meeting of the company, and we, therefore, abstain from stating the details of the evidence as our reasons for the opinions we have formed, as their publication would be prejudicial to the interest of the company in the future progress of the company. The purchase which is the subject of the suit has been made in the names of Robert Heron, the late secretary, Samuel Bewley, jun., lately a director of the company, but these gentlemen say they are trustees for themselves, jointly with Mr. Thomas Bewley, late a director, Mr. William Fry, lately solicitor, and Henry Bewley and Timothy O'Brien, shareholders of the company. All the parties claiming to be interested in the purchase are named as defendants. The mines are held for certain leasehold interests, and have been bought at the price of 100,000*l.*, of which 50,000*l.* have been paid up, the remaing sum of 50,000*l.* being payable by instalments during the next eight years, bearing interest until payment at the rate of 4½ per cent. In addition to the capital actually subscribed by them towards the purchase, Robert Heron, Samuel Bewly, jun., and William Fry, have arranged with the other purchasers that they are to receive paid-up shares in the nominal capital of the new company formed to work the mines, amounting in all to 25,000*l.* These shares appear to be given as the price or reward for the services of Robert Heron, Samuel Bewley, jun., and William Fry, in effecting the purchase. We have no means of judging whether the purchase is an advantageous one, or that the company can prudently adopt it. The directors or the company must determine whether it is desirable to claim the benefit of it, and if determined they must provide funds to pay the price agreed on by the present purchasers, and the mines can be claimed only at the price the defendants have agreed to pay. The claim of the company rests on the allegation that the mine was offered to the directors in the first instance, and that the secretary, Mr. Heron, with others of the defendants, formed and carried out the design of dissuading the directors from making the purchase, and of securing the benefit for themselves. We are, therefore, of opinion that if it can be proved that the secretary of the company, acting in concert with the solicitor and some of the directors named, formed the design of securing the purchase, and for that purpose deprived the board of the advice and information to which they were entitled, and thereby prevented the directors from continuing the negociations, and if the same persons afterwards completed the purchase for their own benefit, the company can now claim the purchase, and will be entitled to a decree giving effect to that right. There will be a direct conflict of evidence on many vital points of the case, but we are of opinion that the company will be able to produce evidence that may be reasonably relied on to establish that the design imputed to the defendants was formed, and that material information within the knowledge of the secretary was not communicated to the directors, and that the negociation which resulted in the purchase was during its progress concealed from the company and the board. Where such a conflict of evidence exists the issue of the suit is necessarily doubtful, but the weight of evidence, so far as it is known to us, inclines in favour of the company, and in our opinion the suit may be prosecuted with fair prospects of success." In seconding the motion to adopt the original resolution, as framed by the directors, Mr. John Molley said that all this trouble might have been spared them if the directors about this time twelve months had condescended to call the shareholders into their confidence. They should not now allow their feelings to be carried away on the matter, neither should they allow a property, the receipts of which, inefficiently worked as it was in the last two years, were almost 80,000*l.* per annum, to be wrested from their grasp. In reply to a question, the Chairman said that the company's solicitors estimated the probable law costs in this case, which the company would have to provide for, would be from 500*l.* to 600*l.* The original resolution was then put to the vote, and carried *nem. con.*

At Redruth Ticketing, on Thursday, 1911 tons of ore were sold, realising 10,224*l.* 5s. 0d. The particulars of the sale were:—Average standard, 98*l.* 6s.; average produce, 8¼; average price per ton, 5*l.* 7s.; quantity of fine copper, 157 tons 10 cwts. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Feb. 25 ..	1478	£100 7 0	7⅞	£5 4 0	13s.1½d....	£65 12 0
March 4...	1069	104 0 0	7	4 9 6	12 9½	64 0 0
„ 11 ..	607	101 14 0	7¼	4 13 0	12 9½	63 18 0
„ 18 ..	3994	110 2 0	6⅛	3 19 0	13 0	65 0 0
„ 25 ..	1911	98 6 0	8¼	5 7 0	13 0	65 0 0

Compared with last week's sale, the decline has been in the standard 1*l.* 15s., and in the price per ton of ore about 2s. 10d. Compared with the corresponding sale of last month, the decline has been in the standard 1*l.* 5s., and in the price per ton of ore about 2s. 3d.

At the Swansea Ticketing, on Tuesday, 2046 tons of ore were sold, realising 20,742*l.* 7s. The particulars of the sale were—Average standard for 9 per cent. produce, 93*l.* 13s. 6d.; average produce, 14¼; average price per ton, 10*l.* 2s. 9d.; quantity of fine copper, 291 tons 11 cwts. The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Price per ton.	Per unit.	Ore copper.
March 2	1129	£94 1 0	9¾	£ 6 15 9	13s. 9d. ..	£68 15 0
„ 23	2046	93 13 6	14¼	10 2 9	14 3 ..	71 3 0

Compared with the last sale, the decline has been in the standard 7s. 6d., and in the price per ton of ore about 1s. There will be no sale on April 13.

The directors of the Devonshire Great Consolidated Copper Mining Company, at their board meeting, held on Thursday, declared a dividend of 403*l.*, being 4*l.* per share, arising from profits on sales of copper ores sampled in the months of November and December last. After payment of the same there remains in hand a balance of 12,068*l.* 1s. 2d. in cash, ore bills not at maturity, and reserved fund applicable to the general purposes of the company.

At Ding Dong Mine meeting, on Tuesday, a dividend of 984*l.* (30s. per share) was declared.

At the West Basset Mine meeting, on Wednesday, the accounts showed—Balance carried over from last meeting, 160*l.* 16s. 2d.; copper ore sold, 802*l.* 16s.; tin ores sold, 1918*l.* 18s. 10d.; fines and stores sold, 10*l.* 9s. 6d.; advance on tribute, 135*l.*=3028*l.* 0s. 6d. Cost for Dec. and Jan,, 2384*l.* 18s. 10d.; royalty, 113*l.* 0s. 5d.; advance on tribute, 140*l.*; sundries, 17*l.* 15s. 8d.—balance, 372. 8s. 7d.

At the Chiverton Mine meeting, on Wednesday (Mr. P. Watson in the chair), the question of amalgamating with Mineral Bottom Company was discussed, and a committee was appointed to arrange the terms. Details will be found in another column.

At East Carn Brea special meeting, on Thursday, the resolution that the whole of the sett and machinery of Wheal Union be purchased by the East Carn Brea adventurers, at the price offered, was confirmed.

The Bank of England return for the week ending on Wednesday evening showed in the ISSUE DEPARTMENT a decrease in the "notes issued" of 64,565*l.*, which is represented by a corresponding decrease in the "coin and bullion" on the other side of the account. In the BANKING DEPARTMENT there was a decrease in the "other deposits" of 950,350*l.*, and in the "seven day and other bills" of 31,528*l.*: together 981,878*l.*; an increase in the "public deposits" of 304,252*l.*; and in the "rest" of 25,877*l.*: together 330,129*l.*=651,749*l.* On the other side of the account there is is a decrease in the "public securities" of 127,484*l.*; and in the "other securities" of 224,878*l.*=352,362*l.*, showing a decrease in the total reserve of 299,387*l.*

COAL MARKET.—The northerly wind brought up all the laden vessels (140 in the week). The cold weather imparted a good deal of animation to the market for household coals, and a large business was done, at fully last week's rates. Hartley coals have remained quiet, and without the slightest change in value. Haswell Wallsend, 18s. per ton; Lambton Wallsend, 18s.; Tees Wallsend, 17s. 6d.; Hartlepool Wallsend, 16s. 6d.; Elliot's Wallsend, 16s. 9d.; Kelloe Wallsend, 16s.; Gosforth Wallsend, 15s.; Wharncliffe Wallsend, 15s.; Hawthorn Wallsend, 14s. 9d. Unsold, 17 cargoes; 10 ships at sea. Yesterday being Good Friday, no market was held.

EXPORTS OF COAL.—By the Monthly Circular of Messrs. Higginson, Liverpool, we learn that the quantity of coal exported in February was 613,822 tons, against 581,687 tons in the corresponding month of 1868, showing an increase of 32,135 tons. The particulars are—From the Northern Ports, 265,942 tons; Yorkshire, 22,774 tons; London, 4501 tons; Liverpool, 27,774 tons; Severn Ports, 253,408 tons; and Scotch Ports, 39,423 tons. The increase was—From Northern Ports, 8353 tons; Yorkshire, 8019 tons; Severn Ports, 42,581 tons. The decrease was—London, 75 tons; Liverpool, 24,283 tons; Scotch Ports, 2460 tons. Total, Jan. to Feb., 1869, 1,225,640 tons; Jan. to Feb., 1868, 1,176,138 tons: increase, 49,502 tons.

ENGINE-WORKS.—At the Worcester Engine-Works Company meeting, Mr. Rudd, the manager, said there was a brisker enquiry for tenders, and some that he had sent in had been accepted at a price which would leave a greater profit even than they had a right to look for. There had been a great deal said at the last meeting about continental-manufactured engines. An order was given for locomotive engines to a Berlin house, at such a price that he would be glad if the Worcester Company had an order for 100 of them at the same figure. He thought the trade in engines must soon come back to this country.

THE JOINT-STOCK COAL COMPANY (Limited).—On Saturday last two petitions for winding-up this company—one presented by a shareholder named Green, and the other by shareholders at Norwich—were heard before Vice-Chancellor Malins. His Honour gave judgment against both petitions, observing that the company was so far from insolvent that they could pay 40s. in 1*l.*; that the first petition was presented for intimidation, and to escape a call; and that the second petition was, under the circumstances, unjustifiable. Both petitions were dismissed, with costs.

The Valgodemard Mining Company (Limited) has passed into voluntary liquidation, and Mr. Alfred Good and Mr. J. W. Lukis have been appointed liquidators under the supervision of the Court.

The resolution to wind-up voluntarily the Guinea Wallsend Colliery Company (Limited) was confirmed on the 24th inst., and Mr. Wm. Waddell, accountant, was appointed liquidator.

BRAGANZA GOLD MINING COMPANY (Limited).—We are informed that the shares of this company are being taken rapidly, and that the list will shortly be closed. The shares are quoted at ⅛ to ⅜ prem.

SALE OF MINE SHARES.—Mr. W. Hosken Richards sold, by auction, a portion of the shares held by the late R. V. Davy: 5 Bottallack sold at 231*l.* to 236*l.*; 2 Wheal Owles, 350*l.* to 360*l.*; 4 St. Ives Consols, 20*l.* 10s. to 21*l.* 15s.; 1 Providence, 42*l.*; 2½ Levant, 29*l.* 5s.; 1 Boscean, 23*l.* 10s.; 2 Spearne Moor, 12*l.*; 1 Treivon Consols, 5*l.* Other Botallacks are reserved, as the executors fully expect 250*l.* each for them.

THE ABERDARE MERTHYR STEAM COAL COMPANY.—Messrs. Fuller, Horsey, Son, and Co. submitted for sale at the Auction Mart, on Wednesday, the whole of the property belonging to the Aberdare Merthyr Steam Coal Company (Limited), which was submitted for sale in consequence of the shareholders declining to pay any further amount, the sum to which the shares were limited under the Articles of Association being spent: 30,000*l.* was paid for the lease, and a further sum of 20,000*l.* had been expended on machinery, driving the deep drift, and other necessary works for developing the colliery, which was now capable of an output of 500 tons of coal per day, at an estimated cost of 5s. 4d. per ton, including royalties and all mining charges, the coal realising from 9s. to 12s. per ton in Cardiff, and the smalls, being largely used in the manufacture of patent fuel, at 2s. per ton at the pit's mouth. The Merthyr steam coal has long been known, and had been on the Admiralty list, and there would be no difficulty in its being placed there again; while the whole of the various seams underlying the property are being worked in adjoining collieries, and there is mineral sufficient, according to careful estimate, to last beyond the terms of the lease and extended lease. No bid being made the property was withdrawn.

TO COAL AND IRON MASTERS, &c.

A GENTLEMAN, experienced in MANAGEMENT, desires an APPOINTMENT as CONFIDENTIAL GENERAL MANAGER of an extensive COLLIERY, IRON WORKS, MINES, &c., or the development of fresh ground, where high-class certified antecedents of integrity, practical and business ability and energy, &c., would be appreciatively remunerated. Could take a pecuniary interest, if desired.
Address, "Fides," care of Mr. A. Day, Bookseller, 52, New-street, Birmingham.

TO CAPITALISTS, COMPANIES, ETC.

A MINING ENGINEER, of LARGE EXPERIENCE, both in the COLLIERIES and MINE WORKS of SOUTH WALES, and in IRON MINES ABROAD, and now residing and holding an important mineral agency in Wales, has a part of his time unoccupied, and is OPEN to MAKE ARRANGEMENTS with any GENTLEMEN or COMPANY who may wish to employ him in the INSPECTION or SUPERINTENDENCE of MINING WORKS or PROPERTIES.
He is thoroughly acquainted with sound practical COAL and IRON MINING, and their corelative branches, and can produce the highest references as to respectability and competency. Reports, surveys, and valuations made, and railways, inclines, &c., planned and superintended.
Address—"Alpha, Ff. T." Pontypridd, Glamorganshire.

TO IRONSTONE, QUARRY, AND MINE MANAGERS.

WANTED, to proceed to a British Colony, an ACTIVE, INTELLIGENT MAN. He must have a practical knowledge of inclined and vertical hauling arrangements, and of the cheapest methods of quarrying and tramming rock. Character and ability must bear the strictest investigation.
Address, stating age, practical experience, and salary required, to "X. Y.," Mr. Stevens, Joiners' Hall-buildings, Upper Thames-street, London, E.C.

TIN MINING IN CORNWALL.—The Advertiser would be glad to CO-OPERATE with a FEW PARTIES in WORKING some TIN GROUND in one of the best tin producing districts in the county.
Full particulars on application to Capt. JOHN EDWARDS, St. Stephens, St. Austell, Cornwall.

WANTED, by a Mining Company on the Continent, A YOUNG PRACTICAL CHEMIST, capable of MAKING a PERFECT ANALYSIS of COPPER ORES. A gentleman conversant with the extracting of copper by the wet process will be preferred.
Apply, per post, stating terms, and enclosing testimonials, to "R. H.," care of S. J. Scott and Co., Metal Brokers, Birmingham.

PARTNERSHIP OR CAPITAL.

WANTED, a PERSON, with not less than £2000 capital, TO JOIN IN WORKING SILVER MINES in SPAIN. The mines have already been secured, and partly opened out by the Advertiser, who is now in England, and is prepared to make terms of great advantage with anyone willing to join in developing and working the mines.
Address—"R. E.," Adelphi Hotel, Strand, London.

WANTED, a SITUATION, by a good practical ASSAYER and ANALYST, or to MANAGE COPPER SMELTING or other works, or to BUY ORES at home or abroad. Good references given, and good salary required.
Address, F. J. MERRY, 4, Elliott-street, Swansea.

TO SLATE QUARRY WORKERS AND PROPRIETORS.

WANTED, a PARTNER, with £500, in an excellent SLATE QUARRY in SOUTH DEVON. The quarry is now in full working order, with PLANT, &c.; or the proprietor is prepared to TREAT for the SALE of the QUARRY.
For a view, and further particulars, apply to Mr. OLDREIVE, King's Arms Inn, Street, near Dartmouth; to Mr. T. L. OLDREIVE, Land Surveyor, Bridgetown, Totnes; or to Mr. SMITH, Solicitor, Dartmouth.—March, 1869.

TO CAPITALISTS.

WANTED, a RESPECTABLE PARTY to JOIN in WORKING an excellent SLATE AND SLAB QUARRY, or a PART of the PROPERTY would BE SOLD.
No one need apply but respectable capitalists, who could give good references.
Apply, by letter, to Mr. H. W. JONES, 5, Earl-street, Wrexham.

WANTED TO PURCHASE, immediately, TWELVE NARROW GUAGE COKE TRUCKS (new, or in good repair), to carry from 6 to 7 tons, and constructed in accordance with the requirements of the Monmouthshire and Great Western Railway Companies.
Apply, by letter, stating terms and full particulars, to the SOUTH WALES COLLIERY COMPANY (Limited), Docks, Newport, Monmouthshire.

WANTED,—A 70 in. cylinder PUMPING ENGINE, with TWO BOILERS, of 10 tons each. State maker's name, and full particulars, with lowest price for cash.
Address, Mr. JAMES HICKEY, 22, Austinfriars, London.

WANTED, from THREE to FIVE TONS of SECONDHAND BRIDGE RAILS, 14 lbs. per yard.
Address, THE GREAT NORTHERN MANGANESE COMPANY (Limited), Mynyddnodol, near Bala, North Wales.

TO MINE BROKERS AND SPECULATORS.

A MOST VALUABLE TIN SETT, containing several proved GOOD LODES, may be had on easy terms. Is highly reported on, and cannot fail to make rich returns.
Address, "A. Z.," MINING JOURNAL Office, 26, Fleet-street, London.

FLUOR-SPAR.—A LARGE QUANTITY of the above, of the very best quality, FOR SALE.
For further particulars, apply to Mr. MATTHEW GREENE, 14, Pinner's Hall, Old Broad-street, London, where samples may be seen.

VALUABLE SLATE QUARRY INVESTMENT.

TO BE DISPOSED OF, on the most reasonable terms, ONE SHARE in the DOLGOED SLATE AND SLAB QUARRY.
Apply, by letter, to "J. C. R.," Gaewern Post Office, Corris, Machynlleth.

TO SPADE, SHOVEL, AND SCRAP USE MANUFACTURERS.

TO BE DISPOSED OF, the LEASE of the OLD FORGE, near KIDWELLY, CARMARTHENSHIRE, worked by water power; with the MACHINERY, PLANT, TOOLS, &c., all in good working order, and competent to turn out 200 dozen shovels per week.
Apply to Mr. R. HENDERSON, Land and Mine Agent, Kidwelly.

TO LET, A VALUABLE COAL MINE.—Apply to Mr. GEORGE DAVIDSON, Mawley, Cleobury Mortimer, Shropshire.—Dec. 12, 1868.

RHENISH PRUSSIA.

SEVERAL VALUABLE MINES FOR SALE,—LEAD, COPPER, BLENDE, and IRON. The Mining Laws of Prussia gives with the concession to work an absolute right of property in the mine for ever, subject only to a royalty of 2 per cent.
Apply to Mr. YOUNGHUSBAND, 6¼, Wilhelm Strasse, Bonn-on-the-Rhine.

TO IRONMASTERS, MILL MANAGERS, AND OTHERS.

FOR SALE,—A powerful BLOWING ENGINE, of superior construction, equal to new; steam cylinder, 33 in. diameter, 8 ft. stroke; blowing cylinder, 80 in. diameter, 8 ft. stroke. The above engine is by the well-known firm of Messrs. LOSH, WILSON, and BELL.
Particulars may be obtained by applying to Messrs. H. L. PATTINSON and Co., Felling Chemical Works, Gateshead-on-Tyne.

STEAM ENGINE FOR SALE,—a 16-horse power condenser, with upright shafting, by FOX BROTHERS, of Derby, in excellent condition. May be seen at work.
Apply to THOMPSON and YOUNG, 21, Irongate, Derby.

Sale of Stores, Royal Arsenal, Woolwich.

IRON WATER PIPES.	PACKING CASES AND BOXES.
TWENTY-FIVE IRISH CARS.	LEAD AND FOUNDERS' ASHES.
EIGHT CUPOLAS, for melting metals.	MIXED METAL.
STEEL AND ZINC.	TOOLS.
SERGE CUTTINGS.	LEATHER.
HARNESS, good	WAGONS AND WHEELS.
CANVAS.	CARTS.
JUTE.	FILES.
SCREW PROPELLER.	NAILS.
MACHINERY.	&c., &c., &c.

MR. SPILLMAN (of Bell-yard, Fleet-street, W.C.), will SELL, BY PUBLIC AUCTION, at the Royal Arsenal, Woolwich, by order of the Secretary of State for War, on Monday, the 5th of April, 1869, at Eleven o'clock in the forenoon precisely, the above-mentioned STORES.
The lots may be viewed at the Royal Arsenal, Woolwich, from Ten to One o'clock, and from Two to Five o'clock on the three working days previous to and on the morning of the day of sale; and catalogues may be obtained at the War Office, Pall Mall; at the Tower; and at the Royal Arsenal, Woolwich.

TO ENGINEERS, AND OTHERS.
TO BE SOLD, BY PRIVATE TREATY.

MESSRS. ORMEROD are willing to DISPOSE OF their PATENT RIGHT in the
PATENT SAFETY LINK,
FOR THE PREVENTION OF ACCIDENTS BY OVERWINDING, &c.

The PATENT SAFETY LINK is extensively in operation in many of the largest collieries, and has been the means of preventing several accidents.

For terms, and to treat for the same, apply to—
MR. EDWARD ORMEROD, CHOWBENT, NEAR MANCHESTER.

FOR SALE,—THE UNDERMENTIONED ENGINES AND WATER WHEELS:—
ONE 60 in. cylinder ENGINE, 10 ft. stroke in cylinder, and 9 ft. in shaft; with TWO Cornish BOILERS, 10 tons each.
ONE 56 in. cylinder PUMPING ENGINE, 9½ ft. stroke, equal beam; with TWO Cornish BOILERS.
ONE 50 in. cylinder PUMPING ENGINE; with ONE BOILER.
ONE 33 in. cylinder (beam) double-acting ENGINE, with pumping gear attached, 6 ft. stroke; with ONE 10 ton BOILER.
ONE 30 in. cylinder (beam) double-acting ENGINE, with pumping gear attached, 9 ft. stroke; with ONE 10 ton BOILER.
ONE 25 in. cylinder (beam) double-acting ENGINE, 6 ft. stroke; with ONE 10 ton BOILER.
ONE 12 in. cylinder rotary STEAM ENGINE, with ONE 6 ton BOILER.
The whole of the above engines are in excellent condition, some being nearly new.

WATER WHEELS.

ONE	WATER WHEEL,	40 ft.	diameter, and	8 ft. abreast.
ONE	ditto	60 ft.	ditto	3½ ft. abreast.
ONE	ditto	20 ft.	ditto	3½ ft. abreast.
ONE	ditto	35 ft.	ditto	3 ft. 2 in. abreast.

The above wheels have cast-iron rings, sockets, and axles.
Also, several Cornish CRUSHERS, of various sizes.
For further information respecting the above machinery, apply to W. MATHEWS, Engineer, Tavistock.
Tavistock, Feb. 25. 1869.

In Chancery.

IN THE MATTER OF THE COMPANIES ACT, 1862, AND IN THE MATTER OF THE COMPANIES ACT, 1867, AND IN THE MATTER OF THE TITANIC STEEL AND IRON COMPANY (LIMITED AND REDUCED).

NOTICE IS HEREBY GIVEN, that a PETITION for confirming a RESOLUTION, reducing the CAPITAL of the above company from £360,000 to £172,000, was, on the 2d day of March, 1869, presented to the Lord Chancellor, and is now pending; and that the LIST of CREDITORS of the company is to be made out as for the 1st day of May, 1869.
BURCHELLS, 5, Broad Sanctuary, Westminster
(Solicitors for the company).

ANGLO-MEXICAN MINT COMPANY.—Notice is hereby given that the ANNUAL GENERAL MEETING of shareholders in this company will be HELD at the office, 4, Finsbury-place South, on TUESDAY, the 6th day of April next, when one director will be elected, in the place of H. W. Schneider, Esq., who goes out by rotation, but is eligible for re-election, and will be proposed accordingly. The chair will be taken at One o'clock precisely.
ALFRED GODFREY, Secretary.
4, Finsbury-place South, March 24, 1869.

THE LUSITANIAN MINING COMPANY (LIMITED).—Notice is hereby given that, in accordance with the Deed of Settlement, the FIFTEENTH ANNUAL GENERAL MEETING of the shareholders in this company will be HELD at this office, on Thursday, the 8th day of April next, at Three o'clock in the afternoon. It is proposed that this meeting shall be held *pro forma* only, and adjourned to some day then to be fixed.
By order of the Board, W. G. WILLIAMS, Secretary.
6, Queen-street-place, London, E.C., 27th March, 1869.

CLEVELAND IRONSTONE.

THE UNDERSIGNED has one of the best IRONSTONE ROYALTIES in CLEVELAND, leased for 40 years, and WANTS a CAPITALIST to JOIN HIM in WORKING the same. Five per cent. allowed for the money, and the profits after that to be divided half and half. The fullest references given. Bankers: The National Provincial Bank of England.
Stockton-on-Tees. S. INGLEDEW, Wharfinger.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
March 25—	Wheal Mary Ann ..	50	£24 4 6	Stock & Co.
—	ditto ..	48	13 10 6	Treffry's Executors.

BLACK TIN.

Date.	Mines.	Ts. c. q. lbs.	Price p. ton.	Amount.	Purchasers.
March 16—	Great Wh. Vor	50 4 3 7 ..	— ..	£3710 4 9—	—
20—	Wheal Uny ..	4 12 0 26 ..	£71 0 10 ..	327 12 0—	—

COPPER ORES.

Sampled March 3, and sold at Swansea March 23.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Union Mine (Tilt Cove)	60 .... 57	9½ 9½	£6 6 6 6 10 6	Cape..... ditto.....	29 .... 48	30¼ .. 30½	£21 7 6 21 9 0
ditto.....	56	9⅛	6 8 6	ditto.....	53	36⅝	25 8 0
ditto.....	52	9⅛	6 8 6	ditto.....	5	36⅝	25 14 6
ditto.....	36	9⅜	6 8 6	ditto.....	26	32¼	22 10 6
ditto.....	10	9	5 17 6	Wallaroo ..	98	9¾	6 16 6
ditto	60	6¼	2 18 0	ditto.....	96	9⅞	6 15 6
ditto.....	62	6½	4 4 0	ditto.....	10	10⅛	6 10 0
ditto.....	61	6½	4 0 0	Knockmahon	121	10⅛	7 9 0
ditto	60	6	3 10 0	ditto.....	70	10¼	7 6 0
ditto.....	57	7⅞	5 5 0	Berehaven ..	69	9½	6 14 0
ditto.....	60	6¾	4 2 0	ditto.....	70	9⅜	6 12 6
Cuba	85	17½	12 13 0	Cawsand Vale	75	4⅞	2 19 6
ditto.....	83	17⅜	12 9 0	Spanish Ore.	40	10½	7 7 6
ditto.....	82	17½	12 10 6	Tigrony	10	40	27 12 0
ditto.....	9	65¼	46 13 0	ditto.....	9	3⅜	1 15 6
ditto.....	81	17⅞	12 14 0	ditto.....	9	8	5 3 6
ditto.....	74	25¼	17 10 0	Regulus	4	35½	23 15 6
ditto.....	73	25⅜	17 15 6	Sludge.....	3	23¾	15 16 0
ditto.....	8	65	46 0 6	Copper Ore..	9	14⅞	10 5 0
ditto.....	5	68½	48 9 0	ditto.....	6	7¼	4 17 0
Cape.....	55	30¾	21 6 6				

TOTAL PRODUCE.

Union Mine, &c...	631	£3229 0 6	Cawsand Vale....	75	£ 223 2 6
Cuba	500	7787 4 6	Spanish Ore.....	40	295 0 0
Cape	216	4882 16 6	Tigrony	28	338 11 0
Wallaroo	204	1384 5 0	Regulus.....	4	95 2 0
Knockmahon	191	1412 2 0	Sludge	3	47 8 0
Berehaven	139	926 1 0	Copper Ore	15	121 7 0

COMPANIES BY WHOM THE ORES WERE PURCHASED:—

Names.	Tons.	Amount.
Copper Miners' Company	189	£ 986 1 6
Freeman and Co.	155	1116 7 6
P. Grenfell and Sons	228	362 1 5 6
Sims, Willyams, and Co.	290	4017 14 6
Vivian and Sons	360	1493 13 0
Williams, Foster, and Co.	396	3568 17 6
Mason and Elkington	322	4186 2 0
Bankart and Sons	33	258 11 6
Sweetland, Tuttle, and Co.	73	1493 14 0
Total..	2046	£20,742 7 9

NO SALE on April 13.

TOTALS AND AVERAGES.

21 cwts.	Produce.	Price.	Standard.
Whole sale	2046	14¼ £10 2 9	£93 13 6

NOTICE.—The sales will commence in future at Twelve o'clock, for quarter past, instead of Eleven as heretofore.

COPPER ORES.

Sampled March 10, and sold at Tabb's Hotel, Redruth, March 25.

Average standard.....	£ 98 6 0	Average produce	8¼
Average price per ton			£5 7 0
Quantity of ore .....1911 tons		Quantity of fine copper..157 tons 10 cwts.	
Amount of money		£10,224 5 0	
LAST SALE.—Average standard.....	£110 2 0—	Average produce.....	6¼
Standard of corresponding sale last month, £100 7 0—		Produce, 7⅞.	

[We shall publish the usual details in next week's Journal.]

THE QUARTERLY JOURNAL OF SCIENCE.

No. XXII. APRIL, 1869. Price 5s.

I. THE MALAY ARCHIPELAGO. With two wood cuts.
II. THE PROJECTED MERSEY TUNNEL AND RAILWAY FROM LIVERPOOL TO BIRKENHEAD. By Sir CHARLES FOX. With page plate.
III. VESUVIUS.
IV. THE ARTIFICIAL PRODUCTION OF ICE AND COLD. By Dr. B. H. PAUL. With four woodcuts.
V. ON SOME RECENT SPECTROSCOPIC RESEARCHES. By WILLIAM HUGGINS, F.R.S. With page plate and three woodcuts.
VI. THE FUTURE WATER SUPPLY OF LONDON. By C. W. HEATON, F.C.S., Charing Cross Hospital.

CHRONICLES OF SCIENCE: including the Proceedings of Learned Societies at Home and Abroad, and Notices of Recent Scientific Literature.

BOOKS REVIEWED (amongst others):—

WALLACE'S Malay Archipelago.
BICKMORE'S East Indian Archipelago.
PHILLIPS'S Vesuvius.
LOBLEY'S Vesuvius.
SIMONIN'S Underground Life.
JORDAN'S Vis Inertiæ in the Ocean.
LANGE'S Agate Industry.

London: LONGMANS, GREEN, and Co., Paternoster-row.

A LARGE AMOUNT of MONEY being EXPENDED in ADVERTISING in WORTHLESS PUBLICATIONS, C. H. MAY will be HAPPY to AFFORD INFORMATION to ADVERTISERS in the SELECTION of the BEST and MOST INFLUENTIAL.

C. H. MAY'S GENERAL ADVERTISING OFFICES.

ESTABLISHED 1846.

ADVERTISEMENTS inserted in all the London Provincial, Foreign, and Colonial Newspapers.

78, GRACECHURCH STREET, CITY, E.C.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt: it then forms an accumulating useful work of reference.

STATUTE OF LIMITATIONS.—If your correspondent, Mr. J. H. Williamson, will refer to "The Law of Mines, Minerals, and Quarries," by Mr. Arundel Rogers, page 570, he will find the following:—"In mining matters, the cause of action accrues when the actual damage was, or might have been, by reasonable diligence, discovered; so that the Statute of Limitations would only begin to run from the period at which the injury might have been discovered; and it was ruled by Mr. Justice Willes, in Bohomi *v.* Backhouse, overruling Nicklin *v.* Williams, that any other construction of the Statute which would deprive a man of redress when he might be in invincible ignorance of the damage, would be harsh, and contrary to ordinary principles of law."—G.: *March 22.*

WHEAL OWLES—"J. P."—A dividend of 600*l.* (7*l.* 10s. per share) was paid in February, 1868. Since that date the tin had been stored, resulting in the dividend of 5*2l.* 10s. per share paid in February.

OKEL TOR.—Some weeks ago a letter appeared on behalf of the Okel Tor officials, stating that a meeting would be called early in the spring. Now the month of March has nearly gone, and no notices have yet been received by the shareholders. It is now more than 12 months since any meeting was held, and I, for one, think it is high time that the state of the company's affairs was laid before the adventurers. The directors and secretary seem averse to meeting the shareholders, why I cannot tell.—CITY.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, MARCH 27, 1869.

THE COLLIERY INUNDATION IN STAFFORDSHIRE.

The splendid success which has attended the efforts of the agents of the Earl of DUDLEY to liberate the 13 men and boys who were overtaken by an irruption of water, deserves to be placed upon record in terms which shall encourage, if not guide, men anywhere engaged in mining who may experience a similar mishap. The annals of colliery working do not, so far as we are aware, present a similar case. About 10 years ago many men were surprised by water in Scotland, and they were got out "hearty," after having been immured four days. We have also a faint recollection of men having been down in South Staffordshire—if we mistake not at the Moorcroft Colliery—eight days, yet they ultimately recovered; and in the same district (at Wednesbury), not many years ago, a man and a boy were brought up, after being kept down by water four days, and they recovered. We have not at hand the precise facts in the Scotch case, but in the South Staffordshire cases the flooding was attended with subsidences which supplied some air, though very little, to the men who were overtaken.

In the case, however, of the Earl of DUDLEY'S Wallow's Colliery, Brierley Hill, the men were down longer than were the men in Scotland, longer, too, than in the Wednesbury case; and if they were not cut off for so long a time as were the men at the Moorcroft Colliery, they were altogether without air from any subsidence. They were down most of them 130, and one of them 140 hours, and were got up in such a condition as, with only two exceptions, to enable them to be removed to their homes after only a very brief treatment in the hospital extemporised out of the hovel on the bank, whilst some of them could have walked to their homes if there had been a needs-be for it. Indeed, one young fellow, who had taken care to sleep well in the pit, was as little overcome by exhaustion as it is possible to imagine after such a forced abstinence from food, warmth, and pure air. Refusing the attention of the surgeons, he desired only to warm himself, and to smoke his pipe, and was soon afterwards receiving the hearty congratulations of his comrades in a neighbouring tavern.

How it came about that the people were comparatively so little overcome, the chief explanation is found in the fact that they were all entombed in the Thick Coal workings; and entering some of the Thick Coal workings in a South Staffordshire colliery is, in respect of surrounding space, like entering the lofty vestibule of the Euston-square station of the London and North-Western Railway, which forms so fitting a home for the statue of the collier boy who afterwards invented the "Geordie" lamp, and then made railways. Surrounded by half an acre of air space were one party of five men and a boy, and by a similar subterranean vestibule five men and two boys. Whilst, therefore, they were shut off from all external air, and notwithstanding that the water which got into these workings constantly gave off a quantity of carbonic acid gas, and probably entered the pit heavily charged with it, there was still air enough in the reservoirs which the works opened afforded to sustain life during the time we have mentioned, and would have been enough, probably, for some time longer, aided as it was by some trifling quantity conveyed to the margin of the water later in the drawing, by the commotion occasioned by the pumping and lifting.

The extent of the flooding may be gathered from the fact that from early on the morning of the 17th till the morning of the 21st as much as 56,400 gallons of water per hour was raised, and the pit was not cleared till the afternoon of the 24th. By what means this was accomplished will be gathered from the more detailed particulars, which are as follow:—The pit has a pair of shafts, the positions of which are relatively north and south. From these shafts (which are connected) gate-roads are driven east and west, running nearly level. At the extremity of such east and west gate-roads other gate-roads extend (at right angles, in a southerly direction), for a distance of something like 300 yards to the sides of work, such gate-roads and the sides of work cropping considerably. Although the gate-roads are parallel with each other, the distance between the two working places is over 300 yards. The depth of the drawing-shaft is about 180 yards, whilst the engine pit, in which there is a 15-inch lift, is about 22 yards deeper. About 260 yards away, and nearly on a level with the Lock's Lane Pit, the Earl has other shafts, which have not been at work for many years. In one of these shafts there is also a 10-inch lift, with an engine of appropriate power, which engine worked for some time to assist the Lock's Lane engine in draining the mines, prior to the commencement of the workings. The smaller engine worked only for a short time, the mine having been thoroughly drained, as is shown by the fact that prior to the heavy rains just before Christmas last, the large engine above referred to kept the "come" of water down by working on an average 4½ strokes per minute. His lordship's agents decided not to remove the smaller pumping engine, with a view to its being useful in pumping the water in the event of a breakage of the larger engine at any time; and there is no doubt of the smaller engine being able to lift the "come" of water, the pond having more than two years ago been entirely drawn off. It should be mentioned that, by way of this being done, the Lock's Lane pumping pit, and the pumping shaft of the smaller engine, had been connected by a level, so that the water could flow from either shaft to the other. The space of such level constituted the "pond room" for either engine to pump at. It was certainly the belief of his lordship's agents that no pond of water beyond the small quantity gathered in the level was in existence, and up to this moment they are utterly unable to account for the recent irruption. On the evening of the 16th inst., after the day-men had come up the shaft, the ten men and three boys descended the Lock's Lane Pit to fall coal during the night, for the purpose of the next day's drawing. The signalling between the top and bottom of the shaft is perfect; indeed, it happens to be *in triplicate*, although the Mines Inspection Act only stipulates for one signal.

At 9·30 P.M. one of the party from one of the sides of work signalled, and enquired the time. The engineer answered, and ascertained that the men were all right. It is understood that as late as 11·30 some of the men came into the bottom of the pit for their suppers. The water, therefore, must have broken in very suddenly just after midnight, and the discovery was made on the surface about 2 o'clock A.M. So little did it interfere with the workings in the pit, that whilst one portion of the men found that the water had risen about the same time as the fact revealed itself at the pit top, the other men only ascertained the distressing fact when they had finished their work, about 5 o'clock in the morning, and were returning to the shaft to ascend.

The winding-engine, which stands at right angles with the pumping-engine, is one of adequate power, and considering the great strain put upon it in this emergency, it is a source of gratitude that it did not in any way fail whilst being strained so much in drawing water alternately with lowering and raising the searching parties in their explorations.

On March 17 the water was lowered by means of the united power of the different engines (including a portable engine, to which a barrel was attached), at the rate of about 3 inches per hour. On the following day the water rose again considerably, but on the 19th the engines were able to regain ground, and from that time until the morning of the 22d the water was got down at about the average rate mentioned above. On the morning of Sunday, the 21st, the searching party were able to reach the first lot of men recovered, by walking through the water to the point where they were found, the men having followed the receding water.

On account of the gate-road which led to the other men being slightly "deep," or "dip," at one point, the water had to be drained about 3 feet lower before the searching party could go in that direction. This will account for the difference of 9 or 10 hours between the times at which the two parties of men were rescued.

During the anxious time in which was occurring the events above recorded, the Earl's agents were constantly on the ground, and Mr. J. P. BAKER, the Government Inspector of Mines, was unceasing in his attendance and solicitude. Mr. EDWARD GREENWAY is the mine agent of the Earl, in charge of the underground workings of the Lock's Lane Pit, and during this trying difficulty he was surrounded by his fellow mine agents, Messrs. HUGHES, WM. SPRUCE, M. FLETCHER, and J. LATHAM, all of whom, inclusive of the surface agents, the superintendent, and colliery engineers, as well as the chartermaster, PLANT (who behaved nobly all the way through), and the colliers and sinkers, who, more or less, at the risk of their lives, brought all the men out of their terrible prison to bank, are deserving of all praise. Mr. F. SMITH, the chief mine agent of the Earl, was frequently on the ground, and Mr. JEFFRIES, the local general manager, was scarcely absent during the whole of the operations.

All the boys, and nine out of the ten men, were saved; the tenth man became delirious, and really committed suicide. No life would have been lost if this had not occurred.

THE WHITWOOD AND METHLEY COLLIERIES.

H. BRIGGS, SON, AND CO. (LIMITED).

Whatever difference of opinion may exist as to the policy of masters agreeing to limit their profits, by giving their workmen a direct interest in the success of their businesses, for the purpose of combatting strikes and disputes, there can be no question that the experiment made by the Messrs. BRIGGS, of the Whitwood and Methley Collieries, has so far been eminently successful. Less than four years ago the Messrs. BRIGGS, who had suffered much from disputes with their men, causing their extensive collieries to be standing at times, determined to try what could be done by a new system, by which the men in their employ should participate in the profits. For that purpose the premises and plant were valued, and the property divided into 9000 shares of 10*l.* each. So as to give Messrs. BRIGGS complete control of the works, they retained two-thirds at least of the shares, the other third being offered to the employees. It was also agreed that after a clear 10 per cent. had been set aside for the payment of the shareholders, one-half of the excess should be given by way of bonus to the workmen, calculated on the amount earned by each during the year. The capital of the company is 102,805*l.* 10s., being for 9791 shares, at 10*l.* 10s. paid up; but we believe the shares would realise fully 5*l.* premium, if issued to the public. With regard to the business done by the company, it appears from the last balance-sheet that the gross amount received for coal during the year was 146,433*l.*, whilst the wagons and vessels earned 3000*l.* 5s. 4d. On the other hand, 7855*l.* was paid for unworked coal, 22,033*l.* expended on new cottages, plant, and works, and 3307*l.* 1s. 8d. advanced to workmen for building cottages on freehold land. The net balance of profit and loss account after certain deductions was 23,221*l.* 9s. 9½d., which admitted of a dividend of 10 per cent. on the original capital, as well as a bonus on the same of 3½ per cent., and a bonus to the employees of the company, with an addition of 5000*l.* to the reserve fund. As a proof that the system has worked well, the report states that "No trade dispute has arisen during the past year, although a reduction of the current rate of wages to the average of the district has been carried out. The bonus payable to the workmen in respect of the extra profits of the year will, however, more than reimburse them for that reduction." The elder Mr. BRIGGS, the founder of the company, died at the close of the year, and it is stated that "Having experienced the trouble and anxiety occasioned by the constantly recurring disputes of former years, happily lived to see the complete success of the principle upon which the business of the company is conducted." As to the general application of the system, in their evidence before the Commissioners on the working of Trades Unions, the Messrs. BRIGGS think the system more applicable to undertakings such as their own, where a large proportion of the expenditure consists of wages, and where large quantities of stores and materials are under the control of the workmen, who are thus brought to feel a direct interest in the economical conduct of the works.

With regard to the plant and collieries, the latter of which we, a few days ago, visited in company with Mr. W. BRUTON, the underground viewer, and who has done much to develope the resources of the company, we can say that they are of the most complete character, having every practical appliance for economising labour and ensuring the safety of the workmen. From the various pits to the station at Normanton a telegraph line has been laid down, the workings being supplied with gas made on the premises, whilst there are upwards of 420 comfortable cottages for the use of the workpeople, and a considerable number in course of construction. There are schools for the children, and everything is apparently done to make the families happy and contented. The plant includes nearly 1000 coal and other wagons, and three locomotives (one of them bearing the appropriate name of the "Co-operator.")

The first pit which we visited was the Good Hope, the same which Lord ELCHO went down last year. It is about 70 yards deep, has two shafts, one of them being 12 feet in diameter, and is worked by a pair of engines by DAVIS, of Sheffield, with 18-inch cylinders, with three double-flued boilers, with a 20-inch pumping engine. On descending the shaft we found the main roads, stables, and other places well lighted with gas, the current of air being very strong. The colliery is well laid out, and highly creditable to Mr. BRUTON for the ample precautions he has taken to prevent accidents, and at the same time to ensure the raising of the mineral with all expedition. The seam of coal is 6 ft. 6 in. thick, and upwards of 8000 tons can be drawn out in a day, if required. The system of working the coal is one which has been strongly recommended by Mr. DICKINSON, one of the Government Inspectors of Mines, as the safest that can be adopted. When the coal was reached, the roads were driven out in the solid to near the extent of the "take" in one way for about three-fourths of a mile, and was then worked on what is known as the "long wall" system, by the back stroke, and then brought out in banks of 300 to 400 yards, on a face which is well adapted to the seam, the roof being very friable. Each bank is about 30 yards in length, the coal being got "on end." The workings are divided into compartments, each being separated from the others, so that in case of an explosion it would be entirely confined to the district in which it took place. At the bottom of the drawing shaft in the pit are a blacksmiths' shop, and offices for the steward and others. This being the new pit, it may be stated that the fossil flora found in the seam and above it was remarkably fine, and in the office of Mr. BRUTON there was a remarkably fine specimen of the siggallaria, the trunk of the tree being quite perfect, and about 2 ft. in diameter and from 3 to 4 ft. in height. There were also some very finely formed ferns and other plants, well defined.

The No. 2 pit is connected with the Good Hope, and is about the same depth, and on the same seam of coal. The Methley Junction Colliery to the Haigh Moor bed is about 145 yards deep, has two 11-ft. shafts, worked by one engine. At this pit the "tail-rope" is used in the working for about three-fourths of a mile, by a single-cylinder engine in gear. It draws 50 tubs at one time along the roads, doing the journey backwards and forwards in about 15 minutes, including the stoppages, or at the rate of six miles an hour. There is another colliery, where a very good seam is being worked.

Haigh Moor shafts are a pair of 12 ft. diameter, sunk 245 yards to the Haigh Moor seam of coal, 3 ft. 6 in. thick, the same as Mr. WILKS has just got to at Glass Houghton Colliery at 346 yards. The coal is hauled to the pit bottom by a portable engine, on the tail-rope system, and very economically it does its business. The coal is worked upon the end, and is a good house coal; a band of dirt intervenes between the bottom and top part of the seam of about 6 in.; the roof is good, but makes a great deal of water, which difficulty is greatly overcome by the application of the horse-pump. About three-quarters of a mile north of this pit is the Methley Junction Colliery, a pair of 11 ft. diameter pits, with a pair of horizontal high-pressure engines 25 in. diameter. These pits were very expensive in sinking, on account of the immense quantity of water, which was supposed to come from the River Calder, the pit being in close proximity. After considerable trouble the water was tubbed back with segments of cast-iron, and to the depth of 100 yards; the depth to the Haigh Moor coal was 145 yards, and is 5 ft. thick, excellent house coal. The coals are hauled underground by a horizontal high-pressure engine, diameter of cylinder 18 in., on the tail-rope system, which has worked effectually for six or seven years; this engine, when thrown out of gear for hauling coal, can be put in gear to pump the water from the mine, which is done by a pair of 6 in. diameter rams, the stroke 36 in., giving 12 strokes per minute.

All the pits are well ventilated, no better proof of which need be adduced than the fact that accidents of a fatal character are very rare, there not being more than one death for from 400,000 to 500,000 tons of coal got, whilst for the whole of Yorkshire in 1867 there was one life lost for every 109,444 tons of coal raised.

The greater part of the minerals belong to Lord MEXBOROUGH; but there is a very extensive fault, which runs between the Haigh Moor and Methley Junction Collieries, taking a westerly and easterly direction, and is about 100 yards in depth; but so far it does not interfere with the getting of the coal. The company have at present a coal field of from 2000 to 3000 acres, but are just now engaged in boring in the direction of Pontefract, so that there is every prospect that sinking will be shortly commenced, and that the district will become a very populous and prosperous one, as the men, who were for a long time very shy in giving in their adherence to the system, are now more alive to their own interests, and are showing a desire of being included in the list of shareholders.

The collieries are well worth visiting, as is the system of investigation, seeing that where only a few years ago a firm with a very large capital invested in coal mines had their trade paralysed by a succession of strikes and disputes, which deprived them of their profits and depreciated their property, but is now doing a large and profitable business, and where poverty and squalor were the rule there is now a large and thriving community, many of the members of which are now residing in their own houses. Thus, although the Messrs. BRIGGS divide the profits which under ordinary circumstances they would have appropriated to themselves, it may be said that what they lose in that way is more than made up by the constant working of their men, and the avoidance of all that opposition which is too often the case in Yorkshire, as well as in other places, between colliery owners and their men, and which in few places more extensively prevailed, up to a comparatively recent period, than at the collieries in the neighbourhood of Normanton.

As the coal is now being opened out in an entirely new field, the following section of strata at Whitwood may not be uninteresting:—

Section of Strata at Whitwood:—

	Yd.	ft.	in.
Soil	0	1	6
Grey stone	15	0	7½
Dark galliard	1	1	2
Strong white stone	1	1	9
Grey bind	0	2	1½
Ironstone	0	0	1½
White stone (much water)	1	1	0
Black shale	0	0	10
Grey bind	1	1	6
COAL	0	0	10
Brown doub	0	0	7
Blue bind	2	0	7
Dark ditto	0	1	0
Blue ditto	0	1	0
Stone	2	2	6
Galliard	0	0	6
Light grey stone	0	1	8
Blue bind	1	2	5
Black shale	2	0	10
COAL	0	2	2
Spavin	0	2	8
Blue bind	2	0	0
Grey ditto	3	0	2

	Yd.	ft.	in.
Black shale	0	1	7
Strong grey stone	0	1	11
Dark ditto	6	1	11
Blue bind	5	2	1
Black shale	0	2	10
COAL	0	2	6
Dark grey stone	0	2	5
Grey bind	0	0	9
Dark grey bind	1	1	7
Strong stone bind	0	2	9
Strong stone	0	1	1
Grey bind	2	2	10
Ironstone	0	0	3
Dark bind	1	1	2
Shale	0	0	8
COAL:— Ft. in.			
Stanley Main 1 6			
Band 0 3½			
Coal 1 5			
Band 0 5½			
Coal, bright 2 7			
Ditto, tender .... 1 0 =	0	7	3
Total	69	2	1½

THE DRAINAGE OF TIPTON BASIN.

We have reason to know that arrangements are being made for a temporary undertaking between the chief colliery proprietors interested in the drainage of the Tipton basin, by which those pumps shall be kept in operation a brief while, till a more definite and comprehensive scheme can be established. Perhaps 40 colliery proprietors and ironmasters are largely interested in keeping the water down. Of these, at least, 10 are vitally concerned. Messrs. DIXON, AMPHLETT, and Co. have stopped their large engine, which has cost them 1200*l.* a-year to work, for the good of the pond, for the time during which they engaged to keep it on has ceased. The water has, therefore, began to be troublesome in the immediate locality. The importance of this engine to the neighbouring proprietors may be inferred from the fact that when it stopped for repairs a short time ago it drowned out one of these, who had put up a pumping-engine for himself, and, therefore, believed that he was independent of the Pumping Association. The stoppage also did great damage to the works of one of the members of the association.

In order to a new arrangement upon a fair basis being come to, there should be an enquiry into the whole question of the "come," the capabilities of existing engines, the cost of keeping dry the property open and to be opened within the period of the compact, the proportionate amount of liability of the proprietors served, and the remuneration to be awarded to the firms who pump, arranged upon a scale regulated according to the height and the quantity lifted.

This work can only be adequately performed by some one altoge-

ther uninterested, and who, at the same time, has a professional knowledge of the subject investigated. Judged by what appears in another column, who is so fit for this work as the engineer there mentioned, who has made himself familiar with the pumping question of South Staffordshire, if he can be prevailed upon to undertake it?

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,
Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Mr. FERDINAND LE ROY has specified a patent for an improved non-conducting composition for preventing the radiation or transmission of heat or cold, and an improved method of applying the same. This improved composition can be used as a substitute for mortar and cement in building or stopping up boilers and other steam receivers with bricks, also for coating steam-boilers, locomotives, cylinders, steam-pipes, charcoal filters, and other steam receivers and apparatus of any kind where it is required to prevent the radiation of heat; it may also be used for coating pumps, cylinders, pipes, and other utensils and apparatus for containing and conveying water and other liquids and beverages requiring to be protected from the external air, intense cold, and frost. He prepares the improved non-conducting composition by mixing and combining brick-clay with powdered charcoal, sawdust, fuel sweepings, cow-hair, cocoa-nut fibre, wheaten flour, yeast, or other fermentable substance, residues from the conversion of starch into sugar, water, and cotton-foot oil in the following manner:—In a vessel of a suitable form and size, furnished with a stirring apparatus, he places about 112 parts in weight of brick clay, 70 parts of powdered charcoal, 28 parts of sawdust, 28 parts of fuel sweepings, 8 parts of cow-hair, 8 parts of cocoa-nut fibre, 2 parts of wheaten flour, yeast, or other fermentable substance, 8 parts of the residues from the conversion of starch into sugar, 80 parts of water, and 36 parts of cotton-foot oil. The stirring apparatus is then put in motion, and as soon as these substances are well mixed and combined into a paste or mortar he then puts the composition into a fermenting vat, and submit it to a certain temperature, so as to cause fermentation, the result of which is a homogeneous self-adhesive substance, which is then ready to be used for the purposes herein-before described. For covering marine and locomotive boilers, the fronts of horizontal boilers, and flat upright surfaces, he uses at certain distances between the first and second inch of the composition hoop iron, fastened at each end with screws. The object of this hoop iron is to secure the equal adhesion of the composition, the hoop iron undergoing the same expansion and contraction as the iron of the boiler.

Messrs. JOHN FLETCHER, sen., JOHN FLETCHER, jun., and WILLIAM FLETCHER have also obtained a joint patent for an invention relating to machinery for grinding sand and other substances. This invention is applicable to mortar mills and other machines of the like description, and consists in supporting the revolving trough of mortar mills, or mills for grinding sand and other substances, upon anti-friction rollers, mounted on radial spokes, which rotate around the central axle of the mill, and in guiding the said axle in a centre bearing. Another part of this invention consists in raising and lowering the grinding rollers simultaneously, by means of a cross shaft, with worms or wheels gearing into wheels, the bosses of which form nuts for screws connected to the horizontal axle of the grinding rollers. These worm-wheels are turned round alternately in one direction or the other, by a friction or other wheel on the driving shaft, gearing into two carrier pinions fixed to a swivel plate, which carriers gear alternately in the wheel on the shaft with the worms. This invention consists also in connecting each of the grinding rollers to the horizontal axle by a wedge and washer, and in protecting the joints of the said axle and rollers by circular rings with projecting flanges, which rings are fixed to the said rollers.

Messrs. WILLIAM HANN and EDMUND MILLS HANN have specified a joint patent relating to safety-lamps. The improvements relate chiefly to the class of lamp known as the Stephenson lamp, in which a glass chimney is employed within the outer cylindrical wire casing. In order to prevent the passage of any current between the wire gauze casing and the glass chimney, they fit the bottom of the chimney to the upper surface of the ring, which has projecting up from it a cylindrical flange, which fits within the bottom of the glass chimney, the glass chimney being fitted to the ring and its flange by grinding, or it might be by the interposition at the ends of some elastic, but non-combustible, substance, to prevent breakage; the outer circumference of this ring, at a point below the bottom of the glass chimney, is caused to nip, or embrace, the wire gauze cylinder between itself and the lower part of the lamp frame which the ring screws into. The gauze is thus embraced, or held all round, between two closely-fitting metal surfaces, so that no explosion could pass at this point to the exterior of the lamp. The glass chimney is held down by the top of the lamp, so that it cannot rise up off the ring upon which its lower end rests. Air is admitted to the lamp through apertures in the lower frame, and the air after passing through the lower portion of the wire gauze cylinder passes through apertures cut or bored in the screw-ring which the glass rests upon, and rises up through a horizontal gauze or perforated plate before it can reach the burner. The horizontal gauze, or perforated plate, may either be attached to the screw-ring on which the glass rests, or it may be fitted to the wick-tube, or to both. This arrangement of admitting air into an annular chamber, and allowing it to rise up therefrom to the burner through a horizontal gauze, or perforated plate, may be adapted to other forms of safety-lamps. For protecting the tops of safety-lamps from currents of air they employ a cap, or top, of a hemispherical form, with apertures through its sides for the exit of the products of combustion. At the lower end of the hemispherical top they fix an arched internal shield, which has a central opening formed through it, or numerous small openings might be formed through the arched shield in place of the one central opening. Internal arched shields, or guards, of this description may also be used with tops or caps of other forms. A cap or top such as above described may be applied to the top of a single tube of metal fitted to the top of the glass of the lamp; this tube may either be of cylindrical or conical form, and it may have within it one or more arched guards, or shields, such as above described. It may also have within it a partition of wire gauze, or perforated plate, or a cap may be fitted to the top of the glass chimney.

MANUFACTURE OF IRON AND STEEL.—Messrs. David Hill, Stockton-on-Tees, Joseph Richardson, Stockton-on-Tees, George N. Duck, Coatham, near Redcar, Cuthbert Greenwood Johnson, Stockton-on-Tees, and William Fairles Masterman, Aislaby Hall, near Whitby, have patented the use of certain artificial compositions in the refinery puddling-furnace, or any furnace, receptacle, or apparatus, in which the manufacture of iron or steel is conducted, and by means of which such manufacture is facilitated, and the quality of the resulting metal greatly improved. The artificial compositions thus employed may be divided into three classes. Class 1 is formed by taking any natural iron ores or ironstones (such as hematite, spathic, and titanic ores, and other ores of a similar or analogous character), or artificially obtained ferruginous bodies, comparatively free from phosphorus and sulphur, and their oxides and compounds, and melting the same, either singly or in combination, in any convenient furnace, vessel, or apparatus adapted for the purpose, into a mass which is more or less homogeneous. Class 2 is prepared by taking one or more of the substances previously mentioned as entering into Class 1, and melting the same, either singly or in combination, together with scrap iron (with or without the admixture of siliceous matter, which may in some cases be used for the purpose of rendering the mixture sufficiently liquid), in any furnace, vessel, or apparatus adapted for the purpose, into a mass which is more or less homogeneous. Class 3 is formed as follows:—Any natural iron ores, ironstones, or artificially obtained ferruginous bodies, having been melted and prepared as before described, with reference to Classes 1 and 2, with or without the addition of scrap-iron and siliceous matter, a compound is formed therewith as follows:—One or more of the heavy metals, such, as lead or manganese, or any alloy, amalgam, oxide, or salt of such metals, alkalies, or alkaline salts, or any haloid body, or any mineral or minerals, or artificial body or bodies, or organic substances containing the same, or one or more of them, or the waste products from stills in which cholorine has been prepared, are charged along with one or other of the ferruginous compounds before described in any suitable furnace, vessel, or apparatus, and the whole melted together into a mass which is more or less homogeneous; or such substances as before enumerated, or one or more of them, may be charged into any suitable furnace, vessel, or apparatus, together with the natural iron ores, ironstones, or artificially obtained ferruginous bodies, such as those before mentioned, or one or more of them, and with or without the addition of scrap-iron, and the whole then melted together by the aid of heat into a mass of a more or less homogeneous character. In order to apply the artificial compositions formed as before described under classes 1, 2, and 3, or either of them, to the purposes of this invention, the same are, after being sufficiently heated, removed in any convenient manner from the furnace, vessel, or apparatus employed, and while still in a hot state, or after having been cooled, charged with pig-iron in the refinery, or with refined plate or pig-iron in the puddling-furnace; or the same may be used as "fettling" for the puddling-furnace, or in any furnace, vessel, or apparatus in which the manufacture of iron or steel is conducted, the result in either case being that the iron or steel is more or less purified, and the qualities of the same improved in a very high degree.

AMERICAN COAL AND IRON.—The quantity of coal carried over the Pennsylvania Railroad in 1868 was 2,065,049 tons, showing an increase of 384,326 tons upon 1867. The Cumberland Valley Railroad, which extends from Harrisburg to Hagerstown, Maryland, a distance of 74 miles, traverses throughout its length a valley bounded on either side by mountain ranges, containing some of the most valuable mines of iron ore in the State, of inexhaustible extent. These mines are now being developed. The Portland Company's works, at Portland, Maine, are building two locomotives and 24 iron cars for the Panama Railroad; one locomotive and six passenger cars for the Grand Trunk Railway of Canada; and one locomotive and 105 cars for the European and North American Railroad. The Lehigh Valley Railroad Company has purchased the mines of the Locust Mountain Coal and Iron Company, the Coal Ridge Company, and in part of the Treverton Company, with the view of securing the coal trade of the whole Shamokin coal region to the Lehigh Valley Railroad, and in order to facilitate a scheme for carrying coal direct to New York.

MANUFACTURE OF IRON.—Messrs. MUNRO and ADAMSON, of Arbroath and Glasgow, have patented some improvements in the mode of manufacturing articles now made of malleable or wrought-iron, steel, or cast-iron from re-melted pigs, foundry scraps, or direct from the blast-furnace. Chills of the shape required for the articles to be produced are provided, and molten crude iron or molten pig-iron is run into the chills. As soon as solidified, and for the purpose of making the material very hard and dense, the casting may be taken from the chills and cooled in water or otherwise, or it may be allowed to remain in the chill for a longer period, or the chills may be surrounded with or cooled by water. In place of forming the chill castings of absolutely crude iron, the iron before being cast may be partly refined by blowing atmospheric air into its mass, or by placing compounds of oxygen into the vessel or furnace wherein it is refined. It is to be clearly understood that the chills may be made of the finished shape of the articles to be produced, or they may be different from the finished shape, and castings made therein may be afterwards altered to the finished shape. The chilled castings are afterwards annealed or tempered, thus producing a material possessing many of the properties of wrought, forged, or malleable iron, but avoiding the costly manufacture of iron now in use. The treatment is especially applicable to the construction of such articles as flyers for spinning machinery, buckles, stirrup irons, and light articles used in the arts and manufactures which have hitherto been constructed of wrought-iron or forged of steel. In the manufacture of such articles in the manner herein before set forth, the time and labour hitherto spent in forging them to the proper configuration may be saved, as they may be cast in the finished shape and thereafter annealed, but some castings will not require to be annealed. Under the second head of this invention, iron may be compounded with tin, copper, lead, and other metals; also other metallic alloys, in which iron is not a compound, may be treated in the manner herein before described with reference to crude or pig-iron.

APPLYING HYDROCARBONS FOR SMELTING.—The improvements in the use of hydrocarbonaceous fluids in combination with superheated steam for the purposes of smelting, working of metals, &c., provisionally specified by Mr. PAUL RAPSEY HODGE, of Adam-street, Adelphi, relate to the application and use of hydrocarbons, such as gas tar, petroleum, or paraffin, or any of their combinations, or products arising from them in their manufacture, to be used separately or in combination, and rendered fluid by heat or otherwise, and used in combination with superheated steam through, and by means of, compound jets, wherein the steam and hydrocarbons are brought together at the same time in their proper equivalents to produce proper combustion. If for smelting or melting purposes for any of the metals, he inserts a compound jet in combination with, or in close proximity to, the tuyere holes or blast, or separate apertures may be made especially for these jets, so that the flame and heat arising from the combination and combustion of these two elements may unite and commingle with the other combustibles of the cupola, and reduce the "charge." He further proposes the use of these compound jets in the smelting, melting, refining, or annealing of iron, brass, copper, lead, tin, silver, gold, or any other metal, either in the cupola, reverberatory, or annealing furnace, or in furnaces wherein the metals are reduced or melted in pots. He uses the compound jets of hydrocarbon and steam in the heating and re-heating of metals for forging, welding, or brazing, as in the manufacture of iron or brass tubes, and by distributing these jets at such distances as will emit their flame to produce a unform heat throughout the whole length of the furnace, such jets to be used either in combination with or without any other fuel. The compound jets are also applicable for the calcination of metalliferous ores, and for other purposes.

ILLUMINATING GAS.—An economic combustible and lighting gas has been proposed by Mr. L. S. THOMASSIN, chemist of rue d'Enghien, Paris. It is produced by simultaneously casting on incalescent coke, contained in a retort heated to a red heat—first, a mixture of water, with about 3 per cent. of glycerine; and, secondly, a jet of oleaginous matter, or carburetted hydrogen, the proportion of which would vary according to the degree of richness or lighting power desired. In coming in contact with the heated coke and iron, the water saturated with glycerine resolves into hydrogon gas, bicarburet of hydrogen, magnetic iron, and a little carbonic acid; the fatty matter furnishing the bicarburet of hydrogen also decomposes. The gas formed escapes at the back or hind end of the retorts by means of tubes which connect them with a collecting-pipe, which conducts them to a bath or cistern. The decomposed water and fatty matter are collected in a reservoir provided with a waste-pipe, the gas reaching the bath or cistern of water made in sheet-iron of any desired form hermetically closed, and is filled up to a certain height, and in which the end of the collecting-pipe plunges; the carburetted gas cools, and then passes through an elbow-pipe to a serpentine-pipe arranged in the interior of the washing cistern, where it gets rid of the condensed water and fatty matter held in suspension, which passes along with the gas into the serpentine-pipe, and accumulate in a recipient at the bottom of the pipe, from whence they are discharged into a reservoir by means of a pipe; the gas then ascends by another pipe into an iron cylindrical refiner, fill ed with pieces of coke, sawdust, wood, and an alkali of some sort. This refiner is divided by a partition, which makes or forces the gas to pass twice through the height of the material it contains before it escapes by a pipe at the top, from whence it passes to another and final refiner of the same form and material as the last named, the interior of which is furnished with floors or stages pierced with holes, and between which floors moss, cotton, or any light or spongy substance slightly steeped in benzoin, petroleum, or schist; from thence the gas passes through a pipe into a gasometer of any description or dimensions, to be finally distributed therefrom.

UTILISING WASTE SULPHATE OF IRON SOLUTION.—Mr. FRED. BRABY, of Camberwell, has patented some improvements in treating and utilising waste sulphate of iron solution arising from the cleansing of iron surfaces in the manufacture of tin-plates. In the manufacture of tin plates the iron surfaces or sheets are cleansed by means of sulphuric acid and water, and a crude solution of sulphate of iron is thus produced and commonly thrown to waste. Now, in his invention Mr. Braby treats this solution in such a way as to produce certain useful products, which vary according to the means employed.—1. He adds ammonia derived from any source to the waste solution above-named till complete decomposition results, and prefers to effect this by blowing through a solution of ammonia, and then conducting the blast loaded with the volatile alkali through the solution to be decomposed as above, in accordance with a patent (No. 2067) for which provisional protection was granted to Isham Baggs and Frederick Braby on June 27, 1868. In this decomposition the results are oxide of iron, which falls and must be washed and dried at a low red heat for commercial uses; and sulphate of ammonia, which must be filtered, boiled down, and crystallised.—2. He adds carbonate of ammonia or blows carbonic acid and ammoniacal gases through the crude solution of sulphate of iron, in accordance with the plan of action described under the same patent, No. 2067. The results of decomposition in this case are carbonate of iron and sulphate of ammonia, which are treated in the same way as the products last mentioned.—3. To the crude solution of sulphate of iron he adds a further portion of sulphuric acid, and then blows air through the mixture, or causes air to come in intimate contact with it, whereby persulphate of iron is produced, applicable to various useful purposes.—4. He neutralises the crude solution of sulphate of iron by any convenient means, as by adding thereto scrap-iron, or finely powdered oxide of iron, and boiling or digesting at lower temperatures. He then mixes this solution with a soluble salt of baryta, lime, or lead, whereby useful results are produced, the sulphate being precipitated, and the salt of iron, as the chloride, acetate, or otherwise, remaining in solution.

REPORT FROM MONMOUTH AND SOUTH WALES.

MARCH 25.—No large transactions in rails have been entered into by the leading ironmasters in the district, but the favourable prospects referred to for some weeks past with regard to this department remain unabated, the mills being kept running nearly full time, with every prospect of their continuing so during the spring and summer months. In the home trade there is no material change to note, business to a great extent being suspended until after quarter-day. The Preliminary Meeting of Ironmasters will take place this day, but owing to the present state of the trade the existing list-rates will, in all probability, be confirmed. The rail market is said to be in a firm and satisfactory state, and makers evince no anxiety to encumber themselves with large contracts at present prices, as they fully believe, before the expiration of June, an advance in prices will take place. Advices from the continental markets indicate an increase in requirements taking place earlier than anticipated; the Russian advices continue favourable, and several vessels are being laden with rails for the Muscovite empire, some thousands of tons of rails having to be sent to that country during the present season. Considerable quantities are also being sent to the United States, and the entrance into office of the new President is looked at as the inauguration of an increase in transactions between the two countries. Transatlantic orders are received with regularity, and the engagements now on makers' books are for considerable quantities. Orders for plates are limited, and prices are said to be so low that there is little or no margin left for a profit. The steady increase in the demand for bars has caused prices to advance, which will, no doubt, be a source of consolation to Staffordshire makers, as it will tend to destroy the keen competition between them and the makers in this district. The Pig-Iron Trade is inactive, and will, probably, continue so for a week or two. There is a ready sale for tin-plates, and it is generally understood that prices will be further advanced at the next quarterly meeting.

The Steam Coal Trade is in far from a healthy state, the amount of business transacted being scarcely up to the average, and prices are said to be so low that steam coal proprietors are actually incurring a loss by executing some of the contracts on their books. The difference in wages paid by ironmasters and steam coal proprietors of the Aberdare and Rhondda Valleys is exciting no small amount of attention, as with such differences existing it is impossible for the coal trade to hold its own. It is fairly assumed that the latter pay for labour alone more than the former fully 45 per cent., or 1s. 6d. per ton, which added to 6d. difference in large and small coal royalty, makes 2s. per ton against the Aberdare steam colliery proprietors, and it fares much worse with the Rhondda. In that district they are paying on the average an excess of 60 per cent., or 2s. per ton, together with the aforesaid difference in royalty, making a total of 2d. 6d. per ton difference between the Rhondda and the ironmasters. It would be well for the masters and men of South Wales to take the hint lately given by the ironmasters and ironworkers of the northern district, by the formation of a board of conciliation, for unless such a step is adopted, and wages reduced to an equitable rate, it is clear that some of the colliery proprietors will be unable to continue their workings unless there is an advance in quotations, which it must be admitted is not at all probable at present.

At Ebbw Vale a number of new balling-furnaces have been erected by the Ebbw Vale Company, and this is looked upon as a sure proof of an improvement having set in in the iron trade.

A frightful explosion took place at the Stable Pit, Nant-y-Glo, on Friday, by which one man, named David Jones, was killed, and nine others were fearfully burnt. It appears that the deceased and several others were engaged in putting up a doorway in one of the air-ways, and after the door had been closed some little time to drive the air in a certain direction one of the men held his lamp near a crevice at the top of the door, to see if any gas had accumulated, but no sooner had he got his lamp near the top of the door than a fearful explosion ensued, the result being as above narrated. The back of the deceased was broken, and he was blown a considerable distance. Three of the other poor fellows are not expected to survive. The pit belongs to Messrs. J. and C. Bailey, and although gas was known to be in the pit, no such accident as the present one has occurred before.

The Ferndale Relief Fund central committee has just issued its report for the year ending March 17, 1869. To widows, orphans, and dependents have been paid 1818*l.* 6s 6d. To nine widows, who have re-married, as three-fourths of their marriage bonuses, which clear them from the fund, 120*l.* have been paid. Five widows and their dependents have been paid off in full to the amount of 73*l.* Probably these have emigrated, but the report does not state. In school fees, for 100 children, 72*l.* 7s. have been paid. The number of dependents now on the fund is 54 widows at 5s. per week, 153 children at 1s. 6d. and 2s. 6d. per week, besides 30 other dependents paid at various rates. The balance in favour of the fund is 19,495*l.* 13s. 8d., besides unpaid subscriptions, estimated at 2000*l.* from Pontypridd, 136*l.* balance from Newport, 60*l.* balance from Merthyr, and 36*l.* balance from Cowbridge. The correctness of the accounts is vouched for by Mr. A. Dalziel, who had attached his name to them as auditor.

The arrivals at Swansea include—the Nordsen, from Brevig, with 245 loads of timber, and 375 pieces of battens, for A. Sterry; the Skulda, from Norway, with 126 boxes of copper ore, for H. Bath and Son, and 1851 pieces of square timber, for G. E. Bird and Co.; the Faithful, from Dieppe, with 100 tons of chalk, for Vivian and Son; the Wasp, from Antwerp, with 197 tons of fire-clay to order; the Minero, from Coquimbo, with 700 tons of copper regulus, and 4 tons of lead ore, for H. Bath and Son; the Atlas, from Santander, with 158 tons of zinc ore, for G. E. Bird and Co.; the Eta, from Junin, with 135 tons of nitrate of soda, for H. Bath and Son.

ARTHUR OWEN DAVIES, M.E.—The death of Mr. Arthur Owen Davies, mining engineer, is announced. The sad event took place at his residence, Llantrissant, where he had resided for several years past. Deceased was a mining engineer of marked ability, and his knowledge of the mineral formations of South Wales was of that practical and comprehensive character as to place him in the first rank of local geologists. His other scientific attainments were also of a high order, and he had a mind as well richly stored with general information. Deceased was in his 53d year.

REPORT FROM THE FOREST OF DEAN.

MARCH 25.—The meeting previously announced to be held by the Forest mining proprietors, and others interested, was held at the Severn Bank Hotel, on Tuesday. We observed that most of the coal-owners and ironmasters were present. The chair was taken by Mr. J. Trotter, who introduced the business by reading the circular convening the meeting, and also certain other documentary circulars issued by the Crown, the last of which bears date Feb. 9, 1869, which runs as follows:—

"I am directed by the Gaveller of Dean Forest to take this opportunity of reminding you of the intimation which was given in my circular letter of Aug. 7, 1863, of which the following is an extract:—'I am also directed to inform you the Crown is advised that after the determination of the old rent and royalty the galee is not entitled to any allowance of right in respect of short workings accumulated prior to such determination, but the Commissioner and Gaveller has applied for and obtained authority from the Lords of the Treasury in all cases where the arrears of dead rent have been or shall be forthwith paid-up, and the conditions under which the gales are held have been and shall be duly observed, to allow (as a matter of grace on the part of the Crown, and not as of right) the galees to work off such short workings out of the over workings which may occur during the first ten years of the new term of 21 years, and that this concession shall extend not only to galees with whom the new agreement has been formally completed, but to all these who shall forthwith accept the terms which have been offered to them by or on behalf of the Crown; but it is to be clearly understood that the concession thus made is altogether exceptional, and that no similar concession will be made or admitted in future.' And I am to inform you that, according to the most liberal interpretation of that intimation the time for making up the short workings which occurred before the galeage rents were determined, will expire at Midsummer, 1873. The Gavelier is willing to admit that interpretation, and to grant until the above-mentioned date for making up the short workings in question out of the over-workings which may arise prior to that date, provided the rents are regularly paid; and provided also that the conditions subject to which the gales are held are complied with; but he wishes it to be clearly understood that the liberty will cease at Midsummer, 1873, and that the liberty to make up the short workings which now or may hereafter exist, as having accrued since the galeage rents were determined will depend upon whether or not such liberty has been granted by the agreements entered into in regard to the new rents when not so granted. No allowance in respect of such short workings will be permitted, and no claim to make up the short workings of any year or years out of the over-workings of any succeeding year or years will be recognised."

The CHAIRMAN then, in a forcible speech of some length, adverted to the general bearing of the question, and thought that it would be altogether impracticable and impolitic, and against the present rules and regulations for working Forest mines, to comply with the terms of the Crown circular in question, which, if not resisted, must eventually have the effect of compelling the owners of mineral properties to either open them in the given time or render them into the hands of the Crown. Mr. Trotter concluded by intimating that although the Crown circulars seems to originate from the Gaveller at the Office of Woods, Whitehall, nevertheless it cannot be well granted that the Commissioner ever acts in business of this kind without first being advised by other subordinate and local officers: he then suggested the necessity of this meeting to determine the course of action

to be taken to uphold their rights as enjoyed through and by the Crown rules and regulations now in existence for that purpose.

Mr. WINTLE (solicitor) said he had been acting, and had done his best for the last 26 years to protect the rights of galees and others interested and connected with mining in Dean Forest, and was now present as representing one of the oldest firms in the forest. He agreed with the Chairman that the Crown did not issue the circular notice in question without being advised by the local officers He then referred the gentlemen present to Rule 4, of the Forest Rules and Regulations for Working Mines, and pointed out the legal bearings of the case in a most pointed, forcible, and practical way, and thought that if the Crown carried out the intention of the circular it would prove a gross injustice to all parties concerned, and possessing mineral property in the forest, It, however, occurred to him that if the case was properly presented to the Crown Commissioner he believed that that officer would see the necessity of withdrawing the circular in question.

Mr. TOM GOOLD also referred at some length to the legal construction of the 29th section of the Act for regulating works in the Forest, and also to the 14th rule, which provides—"That every galee, or person holding through or under him, shall have the liberty of making up the short workings of any year or years of his holding, in any succeeding year or years, but not so as that it—the over workings of any preceding year or years—shall be brought forward in aid of the short workings of any succeeding year or years." Mr. Goold then referred to the 46th section of the Act, as bearing on the present question, and thought that, taking all the circumstances of the case into consideration, the Crown officers were out of court this time; and, further, that if the clauses of the Crown circular is carried into effect, monsterous injustice would be done to the holders of gales.

Mr. JOHN THOMAS said that when he paid his last gale rent he wrote on his cheque a protest against the intentions of the Crown, as pointed out in the circular notice, and that he had received a letter from Mr. Francis, the Crown receiver, informing him that he did not acknowledge the protest.

Mr. H. M. JAMES said that after having heard what the gentlemen present had to say on the general bearing of the question, he should propose that a Mineral Defence Association should be formed, for the purpose of representing the matter to the Crown, and take other necessary steps to protect their interest.

Mr. LUCKES supported the opinions expressed, and seconded Mr. James's proposition. The proposition then having been duly received, was put in the form of a resolution, which was carried unanimously. The gentlemen present then formed themselves into a Mineral Defence Association, the subscription, or entrance fee, being one guinea. It was then further proposed and resolved that all parties directly affected, and who are members of the association, will be rated for any additional expenses that may arise or be required to carry on the defence, in proportion to what each member is charged by the Crown for dead rent for the gales they hold.

Mr. H. J. GREENHAM then proposed that certain gentlemen who he nominated should be appointed as a committee, for considering and determining the best means to be immediately adopted for carrying out the wishes of the Defence Association. This proposition was carried unanimously, and immediately afterwards the meeting terminated.

NORTH OF ENGLAND IRON AND COAL TRADES.

MIDDLESBOROUGH, MARCH 25.—The tone of the Iron Trade has been steady during the week, but no transactions of any magnitude have taken place. There was a full attendance on 'Change on Tuesday, makers had to report a decrease in stocks, and the warrant stores have been reduced to 68,235 tons. Shipments to the Continent are not so numerous just at present, as makers look forward to securing orders at more favourable prices for autumn delivery. The deliveries to Wales and other districts for inland consumption continue, however, to absorb a larger weekly make of pig-iron than hitherto. Forge-iron is in steady demand, and several large contracts have been entered into since our last report. Foundry iron is in moderate request, although rates can scarcely be said to be so full. Orders for merchant iron continue rather scarce, and the same remark applies to wrought-iron. Shipbuilders are busy, the majority of the yards being fully employed, and as a consequence, the enquiries for plates are numerous. In the rail mills business continues brisk, and is likely to remain so throughout the summer. The present rates are—rails, 6*l.* 10s. to 6*l.* 15s.; contractors' rails, 6*l.* 5s. to 6*l.* 10s.; bridge rails for collieries, 6*l.* 7s. 6d. to 6*l.* 10s., net cash on trucks at makers' works. The pig-iron quotations are—No. 1, 2*l.* 9s.; No. 3, 2*l.* 5s. 6d.; No. 4, 2*l.* 5s.; Mottled (white), 2*l.* 4s.

A considerable amount of importance is attached to the deliberations of the Board of Arbitration and Conciliation recently established in this district. The board met on Monday at Darlington to consider the wages question. Agreeably to the requirements of the Mundella principle, on which the board is established, an equal number of delegates and masters attended from the various works connected with the board. After disposing of some routine business, one of the operative representatives proposed that an advance of puddlers' and millmen's wages be made, on the ground of the improvement in trade, and the advanced price of iron. A large number of figures were given for and against the proposed rise of wages, and it was ultimately agreed to refer the subject to the standing committee, who will verify the contract prices given by the employers, and call another meeting of the board as early as possible. It is quite generally expected that, if not at present at least before the close of the season, the state of the trade will warrant the concession of increased wages by the masters.

Of the Coal Trade in the North of England we cannot speak in such hopeful terms. Exports have decreased considerably within the last month or two in the coal and coke departments, while in everything else there is an increase of shipments. Few of the collieries in South Durham or Northumberland have a full week's work; a change for the better is, however, confidently looked forward to before the close of the summer.

At a meeting of the Cleveland Institute of Engineers, Mr. Crossley read an interesting paper "On the Utilisation of Blast-Furnace Slag." He demonstrated by practical experiments that grey slag contained—

Of silica	38·25 per cent.
Alumina	22·19 ,,
Lime	31·56 ,,
Magnesia	4·14 ,,
Protoxide of iron	1·09 ,,
Protoxide of manganese	A trace.
Sulphide of calcium	2·95 per cent. = 100·16

In noticing the use to which these products might be applied, Mr. Crossley said there was no reason why slag, if properly annealed, should not be nearly, if not quite, as durable as the whinstone of Ayton. He believed that the day was not far distant when slag would be used in the manufacture of silica and alumina, which was a substitute for alum. With a bed of rock salt, proved to be 200 ft. thick, under their feet, the day, he thought, could not be far distant when Cleveland should be in the alkali trade what it now was in the iron trade, and there could be no doubt it would then be the principal district of the manufacture of alum and salts of alumina. After pointing out how this trade could be profitably carried on, Mr. Crossley concluded, and received a vote of thanks for his paper.

BOARD OF ARBITRATION IN THE NORTHERN IRON TRADE.

The Board held its first meeting in the Central Buildings, at Darlington, on Monday, when the names of the following representatives of firms willing to join the board were given in, one representing the employers and the other the workmen:—Bolckow, Vaughan, and Co. (Middlesborough), Mr. Edward Williams, Mr. Edward Wood Bolckow, Vaughan, and Co. (Witton Park), Mr. Nicholas Raine, Mr. James Croft; Hopkins, Gilkes, and Co., Mr. W. R. Innes Hopkins, Mr. Hy. Keyland; Messrs. Wm. Whitwell and Co., Mr. Wm. Whitwell, Mr. Wm. Inns; West Stockton Iron Company, Mr. Wm. Prosser, Mr. W. Simpson; Stockton Rail Mill Company, Mr. Charles Hill, Mr. Thos. Gibbons; Stockton Malleable Iron Company, Mr. Charles Hill, Mr. Joseph Lansdown; Hartlepool Malleable Iron Company, Mr. Alfred Hill, Mr. Wm. Clark; Darlington Iron Company, Mr. Wm. Barningham, Mr. Thomas Jones; Pease, Hutchinson, and Co., Mr. E. L. Pease, Mr. William Cox; Fry, Ianson, and Co., Mr. J. C. Ianson, Mr. John Davis; Consett Iron Company, Mr. David Dale, Mr. W. Thompson; Messrs. George Hopper and Sons, Mr. John Hopper, Mr. Jas. Wood; S. Tyzack and Co., Mr. John T. Bell, Mr. John Ridge; Palmer's Iron Company, Mr. Jas. C. Ridley, Mr. Charles Peevor, Messrs. Losh, Wilson, and Bell, Mr. Thos. Bell, Mr. Wm. Scott; Thos. Richardson and Sons, Mr. G. W. Jaffrey, Mr. James Lenegan, John Holdsworth and Co., Mr. John Dolman.

With the exception of Messrs. N. Raine, W. R. I. Hopkins, John Hopper, and Alfred Hill, all the above-mentioned gentlemen were present.

It was unanimously resolved that Mr. David Dale be elected president of the board, and that Mr. Edward Wood be elected vice-president. Messrs. John Jones and John Kane were elected secretaries.

The following were then elected to serve on the Standing Committee:—Employers: Messrs. G. W. Jaffrey, Thomas Bell, W. Whitwell, W. R. I. Hopkins. Operatives: Messrs. James Croft, John Ridge, Thos. Gibbons, and Thos. Jones.

It was arranged that the funds of the board should be deposited with the National Provincial Bank of England, in the names of the president and vice-president. It was also resolved that, pending the preparation by the Standing Committee of a permanent financial scheme, the board considered it desirable that proper arrangements should be made as early as possible by which one penny per month should be stopped off the wages of each man earning 2s. 6d. per day and upwards, who may not send in any objection to such deduction; and that the employers remit this with a corresponding amount immediately after pay day to the bankers of the board.

Several other routine matters were discussed and settled, after which the board took up the wages question, which was formally introduced by one of the operative proposing that an advance on puddlers' and millmen's wages be made, on the ground of the improvement of trade and the advanced price of iron. This matter was debated at considerable length, and it was ultimately decided to adjourn the meeting, the Standing Committee being requested to take immediate steps for verifying the contract prices mentioned by the employers as now prevailing, and to convene another meeting of the board as early as possible. It was afterwards agreed to hold a meeting of the Standing Committee for this purpose on Saturday next.

GATESHEAD, MARCH 25.—On the whole, the prospect for the Coal Trade is a little better, particularly in Durham. Some collieries, indeed, are working nearly full time in the central and southern part of Durham; this especially applies to those places where contracts have been secured for gas coke and manufacturing coal, but although the demand is evidently improving, consequent on the steady firmness which continues to characterise the iron trade, yet the collieries generally are far from being fully employed. At the late bindings men were more plentiful than has been the case for many years, and, of course, considerable reductions have been made in the working prices. The Steam Coal Trade, and also the House Coal Trade, has improved considerably since the setting in of cold weather, and as the Government have promptly decided to do justice to the Hartley steam coal, a little more animation is observable in that trade.

The pumping operations continue to be pushed forward vigorously at Wallsend and Hebburn, and the water is still being reduced, although not so rapidly as could be wished, but there is no longer any doubt as to the success of the enterprise. The cost, of course, will be considerable, but certainly not nearly so much as has been incurred in sinking for coal through the sand feeder in South Durham; and, again, the number of acres to be made available for working on the Tyne is much larger than any ordinary royalty in the North.

Machine ventilation continues to make rapid progress. A very large fan, on the principle of Guibal, has been started within the last few days at the Framwellgate Moor Colliery, near Durham. It is of large size, and constructed in the very best manner. It has been worked at a great speed, up to 90 revolutions per minute having been attained. Very interesting particulars will be, there is no doubt, given shortly respecting this machine, as experiments have been made by many eminent mining engineers to ascertain its capabilities. The shaft hitherto used as the upcast, with a furnace at the bottom, is a working shaft, and the fan, instead of being placed as is usually the case at the top of the shaft, is placed near the bottom of the pit in the return air-course from the workings. Of course, if the fan proves successful, which is pretty certain to be the case, as the shaft is only 40 fathome in depth, and, consequently, much in favour of the fan, as compared with the furnace, the smoke in the shaft will be got rid of, and this will be a great boon to the workmen, and also a material saving will be effected in the cost of repairs for the shaft, and that a large addition will be made to the quantity of air circulated in the mine there can be no doubt.

The Iron Trade continues very firm, there being a good demand for rails, and also for ship plates. The iron shipbuilding trade continues to be one of the most prosperous in the North, and large quantities of plates are required for the use of shipbuilders. For other kinds of manufactured iron the demand is not so great, still, on the whole, there is no room for complaint. Pig-iron continues in good demand, the whole production of the district meeting with a ready consumption; and not only so, but the stocks in makers' hands and warrant stores are are also decreasing. Plates are now sold at 7*l.* 7s. 6d. to 7*l.* 10s. The foreign trade continues pretty active, and large cargoes have been shipped for continental markets, so that the day has hardly yet arrived when we have to be ruined by the competition of the French, Prussians, or Belgians. There is hardly any more hopeful sign in the iron trade than the fact that makers now refuse to book orders for forward delivery, at any rate for autumn delivery; and a further rise in prices may be confidently looked for at no distant date. The engine works of the district continue extremely dull, and steam-engines of all kinds are to be had very cheap; they never were, indeed, such a drug in the market as at the present time. Foundries and general engineers' shops, such as bridge-builders, &c., are much better off for orders than engineers proper—that is, makers of finished engines of all kinds.

It is to be earnestly hoped that the Arbitration machinery recently established in the North will work well, and prove successful in preventing those strikes which have proved so injurious to the coal and iron trades. If when business is good, or at all brisk, constant demands have to be made for advanced prices, and strikes resorted to, it is quite impossible for any trade to progress satisfactorily for any length of time.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

MARCH 25.—There has been no change in business during the week, either with regard to the Iron or the Coal Trades, both of which continue rather quiet. Castings are in moderate request, whilst the mills in few instances are kept fully going. The output of pig-iron is still large, considering the quietness which has so long prevailed at the various works for the manufactured material. There is no particular improvement in the demand for coal, which is by no means so active as it was at the same period of last year, more especially with regard to the tonnage going to London and the South. The Midland Railway, however, continues to carry a much larger quantity than it has hitherto done, whilst there has been a falling off with regard to several other lines which, up to a few months ago, did the principal of the carrying business from the district to the metropolis. To Hull and Grimsby there is no improvement, and none is expected until the Baltic is opened for navigation. The works on the Erewash Valley line are kept going to about the same extent as they have been for some months past, but about an average quantity of coal is being forwarded from Codnor Park station to the iron works in the neighbourhood of Wellingborough and Irthlinborough. The works in the Sheffield district are doing rather more, and some of the heaviest and most important branches of the iron and steel trades are much busier than they have been. At Milton and Elsecar nearly all departments are now very active, rails more particularly being in such demand as to tax to the utmost the productive powers of the firm.

At the collieries, however, there are still disputes and rumours of disputes from nearly all quarters. At Mr. Huntsman's collieries, near Sheffield, the men are still out, and are likely to remain so, seeing that the proprietor has determined not to give way in the slightest degree, whilst the men, receiving pay, as they do, from the Miners' Association, are equally determined to remain out until Mr. Huntsman agrees to what they consider they are entitled to. At Denaby Main the men also are out, and it is evident they will have to remain so for an indefinite period, as the managing partner, Mr. Pope, will not employ any Unionists on any consideration whatever. The intimidation by the Union hands, who gave two of the "black sheep" a rather severe beating last week, has not prevented the introduction of a large number of men from Staffordshire to take the place of those locked out. On Sunday, Monday, and Tuesday last upwards of 60 hands arrived at the colliery and commenced working. In justice to Mr. Normanseil and Mr. Casey, the secretaries of the Miners' Association, we may state that they have done everything they could to prevent intimidation or assaults, but their advice is not likely to be accepted by such a large and miscellaneous collection of men, gathered from nearly all the colliery districts in the kingdom. The extensive collieries at Chapeltown and Thorncliffe, belonging to Messrs. Newton, Chambers, and Co., have to be added to those in which the men are not working. On Wednesday, whilst in the locality, we saw large bodies of colliers taking home their picks and shovels, and on asking them the reason they stated that having had a month's notice to leave, they had worked it out, and, according to orders, had taken their tools out. They said they had not been informed as to the reason for the notice they had received, but believed is was preliminary to a reduction of wages, and the payment of wages fortnightly, with some other changes. They also stated that they had been informed by the manager that any of them who wished to be engaged should apply individually at the office, but that they would not be dealt with collectively. The number who left on Wednesday was understood to be about 800. A good many of the banksmen have also had notice, and it is said many of them have had their wages reduced 3d. and 4d. per day At the Swaithe Main Colliery, near Barnsley, four men having received notice for not cleansing the coal, on Tuesday morning the entire body of colliers working in the pit, after filling one corve each, left off work, and went out. On Wednesday morning several of them went to the pit bank, but were not allowed to go down, and so the matter rests for the present.

REPORT FROM SCOTLAND.

MARCH 24.—We have had another week of tidal rates in our Pig-Iron Market, the ebb and flow of prices recurring nearly as constantly as if they were regulated by lunar influences. The moderate prices which have prevailed, even in these circumstances, have brought a few orders from the Continent for extra brands, and these, with the increased shipments, should tend to steady prices. For the week just ended the foreign and coastwise trade reached 13,790 tons, against 10,845 tons in the same week of last year; but the Middlesborough imports have increased, and now amount to 16,510 tons for the year till date, which reduces the deficiency to 8325 tons. We regret to learn that the North American spring fleet to Canada and from the Clyde will be diminished by nearly one-half, and, as their heavy freight outwards consisted of pig-iron and coal, they will only take out about half of what they have done in previous seasons, when there was an ordinary demand. With pig-iron at present moderate rates, a revived trade is expected to be done as the season advances. The following is the state of the furnaces in and out of blast, &c., at the end of the first quarter of the present year:—

Brand.	Blowing.	Out.	Built.	Brand.	Blowing.	Out.	Built.
Gartsherrie	14	2	16	Eglinton (Branded Eglinton)	7	1	8
Coltness	12	0	12	Blair (Branded Eglinton)	3	2	5
Summerlee	6	2	8	Lugar (Branded Eglinton)	3	0	3
Dundyvan	1	0	1	Muirkirk (Branded Eglinton)	3	0	3
Langloan	6	2	8	Portland (Branded Eglinton)	3	3	6
Govan	2	2	4	Glengarnock	10	4	14
Calder	7	1	8	Shotts	4	0	4
Carnbroe	6	0	6	Castlehill	2	1	3
Omoa	0	3	3	Kinneil	2	2	4
Wishaw	3	0	3	Almond	2	1	3
Monkland	9	0	9	Carron	3	1	4
Chapelhall				Lochgelly	1	3	4
Clyde	4	2	6	Lochfergus	1	0	1
Clyde (Quarter)	3	0	3	Gladsmuir	1	1	2
Dalmellington	8	0	8	Lumphinans	0	2	2
				Bridgeness			
Total						36	162

The prices which prevailed at the close of last week for pig-iron were not continued this week, there being no pressure either on buyers or sellers, and yesterday the market closed lower, sellers 53s. cash, and 53s. 3d. a month, buyers offering 1d. less. The market was again flat to-day, with a desire to sell, and 52s. 10½d. to 52s. 9d. cash, and 53s. 1d. to 53s. a month was accepted, closing sellers at the lowest, buyers 1½d. per ton less. During the past few weeks a decline of nearly 3s. a ton has taken place in warrants, which is equivalent to a loss of 40,000*l.* on the quantity stored, in addition to rent and interest. No. 1, g.m.b., 53s. 6d.; No. 3, 50s. 9d.; Gartsherrie, 60s. 6d.; Coltness, 60s. 9d.; Calder and Glengarnock, 57s. 6d.; Langloan, 54s. 9d.; Keneil, 52s. 6d.; Almond, 51s. 6d.—all No. 1. Bar iron is better this week, and makers are said to have entered into contracts for delivery all April, but at no advance in price. Angle iron and plates is pushed, and a large make is the result, all new contracts being paid fully current quotations. Nail rod and hoop iron also in some demand for shipment; prices all as last quoted.

Coals keep depressed, the spring shipments being curtailed, and the passing business being so much diffused coalmasters are alike dissatisfied. It is to be regretted that failures among the small coalmasters cannot be long avoided, and if a decline of another 1s. a ton were to take place scarcely a pit in Scotland would work. At present prices there is no profit, and further reductions would be equivalent to a demand for payments from capital. Wages are now reduced to from 3s. to 3s. 6d. a day, there are some works "on strike," others are working short time. During the week the shipments were 19,860 tons, against 19,030 tons in the corresponding week last year.

MINING ENTERPRISE IN COSTA RICA.

Some few years since considerable interest was felt with regard to the mineral resources of Costa Rica, in consequence of the very favourable reports of the European mining engineers sent out to examine the principal mineral districts of that flourishing little republic, but the monetary panic of 1866, followed by the fearful depression in trade generally, caused all efforts to secure the co-operation of British capitalists for their development to be suspended. Now, however, that the clouds are happily passing away public attention is again being directed to the subject, a company having been inaugurated, under the title of La Compania del Monte-Aguacate, for the purpose of systematising and extending a branch of industry which shall aid in the development, conformably to the experience of other mining countries, the immense riches with which Nature has endowed the cordilleras of Costa Rica. The direction includes some of the most influential men in the country—Senores D. Francisco Montealegre, Iglesias, J. B. Blair (U.S. Minister), Witing, and Carazo (all of whose names are well known in England) being among the number, and it is confidently anticipated that with the proposed capital, intelligence, and economic management a source of wealth will be opened out which, without absorbing much money, will generally improve the prospects of the country, and prove permanently advantageous to all concerned. It is arranged that the capital shall be fixed at $500,000, in shares of $100 each. A mining engineer of acknowledged ability is to be employed, and as from the direction being local the interests of the shareholders will be constantly watched, it is very reasonably urged that the prospects of success are much greater than in undertakings where the management is thousands of miles from the seat of operations.

The properties which the company proposes to develope have been partially explored, and no doubt is entertained that when carried on upon an ordinary commercial scale, they will prove highly remunerative; they are Los Oreamunos, containing a pertenencia of 1000 varas, and San Rafael of 200 varas, on the course of the lode. The mines were discovered in 1825, and during the earlier operations more than $1,500,000 were raised in a very short time, laying the foundations of the fortunes of most of the leading families in the country. But as all operations were carried on in a most unsystematic manner, and as no provision was made to meet the ordinary mining contingencies—to keep the mine open, and relieve it from water—the prosperity was of comparatively short duration. Since that period superficial operations on a small scale have from time to time been carried on; but their unimportant character may be judged of by the fact that even now the deepest sinking in existence does not exceed 100 feet perpendicular from the surface. For the unwatering of the mine there is required a proper adit level, and it has been estimated by competent engineers that this could be made at a cost of $30,000. One adit will drain La Minita, the third property to be worked by the company, as well as Los Oreamunos and San Rafael. The properties have been carefully inspected, both by Dr. Hugo Reck, of Clausthal, and by Prof. Carl von Seebach, and their reports are very encouraging. The Oreamunos and San Rafael lodes, which run parallel to each other at a distance of from 1 to 2 varas, in a south-east and north-west direction, are of an average width of 5 or 6 feet, the variation being from 2 to 15 ft. The lodes consist principally of fahlerz, blende, iron, copper, manganese, and auriferous quartz. The general value of the ley is from $20 to $30, but in exceptional cases a ley worth as much as $500, and even $4000, has been obtained.

The Monte-Aguacate Company's Mines are situated in the Corralillo district, Monte-Aguacate, and are upon the post road from Puntarenas to San José, being about nine leagues from each place. For richness the mines are compared to the richest claims of California, but they have the important advantage of being near the coast, upon a good road, over which the ore can be carted with great facility, and of having an excellent climate, the district being 2500 feet above the level of the Pacific. There is an abundance of wood and water in the locality, and labour is not dear; so that if the recommendations of such men as Reck and Von Seebach be carried out no fear need be entertained of the enterprise proving remunerative. The Compania del Monte-Aguacate may be regarded as the pioneer of a large number of similar enterprises in the district, for the existence of great mineral wealth throughout the locality, of which Los Oreamunos and San Rafael are the centre, is beyond question; and, as the terms upon which the pertenencias can be taken up are extremely

favourable to adventurers, there is nothing to prevent the realisation of very large profits from Costa Rican mining.

SPIEGELEISEN.

Although the Bessemer process may now be considered to have acquired a permanent place amongst our national industries, the erroneous notion that it will not enable us to produce merchantable metal of high quality with English ores exclusively has not yet been thoroughly eradicated. The circumstance of spiegeleisen being invariably introduced into the Bessemer converter has been accepted as an evidence that but for the aid of foreign metal the Bessemer process would be worthless to the iron and steel trades of Great Britain, yet nothing can be further from the fact. With regard to the spiegeleisen, the word is the only thing exclusively German. The ore from which it is produced is found in greater or less quantity in every country wherein the manufacture of iron is carried on, and there is nothing so extraordinary in the process by which it is obtained as to prevent a similar material being manufactured in every country using it, more especially when it is considered that the large and brilliant facets from which the metal takes its name add, probably, nothing to its value, and that the manganese is the element which plays the most important part as a purifier and improver of the metal with which the spiegeleisen is combined. Care in the manufacture of the spiegeleisen is all that is necessary to enable us to produce from the spathose iron-stone of the Brendon Hills a metal quite as well adapted to the requirements of the Bessemer process as that manufactured with the Müsener stahlstein, which is really nothing more nor less than a manganesiferous carbonate of iron. Although for some years past the Brendon spathose ores have been extensively used in South Wales, the effort to produce iron of a quality to replace in this country the spiegeleisen of Rhenish Prussia may be said not to have been attempted; but inasmuch as the application of the Bessemer process is daily extending, it may be anticipated that this neglect will not longer continue, but that the discussion at the forthcoming meeting of the South Wales Institute of Engineers upon the excellent and exhaustive paper by Mr. MORGAN MORGANS, "On the Brendon Hills Spathose Iron Ore and Mines," will inaugurate a new era in the iron trade, and lead to the manufacture of spiegeleisen in this country upon a scale which shall render us entirely independent of foreign supplies of that now essential material.

Under the Ebbw Vale Company the Brendon Hill Mines have grown from insignificant openings to extensive workings, and the pig-iron produced with an admixture of Brendon Hills ore has been highly spoken of. The ore is remarkably rich in manganese, analysis showing it to contain nearly 12¾ per cent. of protxide of manganese, and about 34¾ per cent. of metallic iron, principally in the form of protoxide. This manganese is sufficient to yield a spiegeleisen containing 20 per cent. of that metal, if it could be successfully reduced and alloyed with the iron in the blast-furnace. The range known as Brendon Hills runs nearly east and west, at about six miles south of that part of the Bristol Channel coast lying between Watchet and Minehead, Somersetshire; it extends further west than is lettered on the Ordnance Map, and terminates in a deep valley between it and Eisen Hill, where the ore deposits are also found. The highest point of the range is about 1350 feet above the sea. It is composed of Devonian (according to Mr. JUKES, carboniferous) clay-slate, dipping generally south by east at from 30° to 40°, and north of an anticlinal curve it may also be seen dipping north by west at 60°. The cleavage dips about south by west at from 40° to 80°, and is defined better in some parts of the rock than others. No traces of organic remains have been yet observed in the clay-slate of Brendon Hills, nor have any beds of limestone been yet found near the spathose veins, although it is understood that the spathose deposits of Weardale are in carboniferous limestone. Mr. MORGANS' account of the mine workings is particularly interesting, since he describes the mode of exploring and working the ores which has been pursued, as well as the character of the rocks, and the obstacles met with; and he then points out the facilities which have now been provided for the transport of the ores from the mines. He suggests that the silicon frequently found in rather large quantities in pig-iron made from an admixture of the spathose ore under notice may be accounted for from the fact that low burdens have been carried when much of this ore has been used, so as, from the increased heat, to get the slag out, and prevent the hearth rising. This increased heat has favoured the reduction of the silicon, but he thinks that, judging from the experience obtained elsewhere, it will be practicable by careful fluxing and a proper rate of driving to reduce a large percentage of manganese with very little silicon; and he concludes that at the Ebbw Vale Company's works, at Sirhowy, with spathose ore properly fluxed, and with from 50 to 100 per cent. more blast injected that at present, first-class coke spiegeleisen could be produced with a very large weekly make. Under these circumstances a discussion, which shall permit of a conclusive opinion being formed upon the subject, is looked forward to with much interest.

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In the Court of the Vice-Warden of the Stannaries.
Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the DUKE MINING COMPANY.—By the direction of His Honour the Vice-Warden, Notice is hereby given, that on Wednesday, the 14th day of April next, at the Registrar's Office, at Truro, in the county of Cornwall, at Eleven o'clock in the forenoon, this Court will PROCEED to MAKE a CALL of THREE SHILLINGS AND FOUR PENCE PER SHARE on all the contributories settled on the list of contributories of the above-named company under class A.

All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

E. SMIRKE, Vice-Warden.
FREDERICK MARSHALL, Assistant-Registrar of the said Court.
Dated Registrar's Office, Truro, the 27th day of March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE SOUTH CONDURROW MINE.

TO BE SOLD, pursuant to an Order made in the Cause of King *v.* McIntosh and Others, dated the 17th day of February, 1869, at the Registrar's Office, at Truro, on Wednesday, the 7th day of April next, at Twelve o'clock at noon precisely, the

100 (6123rd) PARTS or SHARES of the defendant, George McIntosh; the
80 (6123rd) PARTS or SHARES of the defendant, Jane Barlow; the
40 (6123rd) PARTS or SHARES of the defendant, Harvie Anderson; the
20 (6123rd) PARTS or SHARES of the defendant, John Ewen; the
15 (6123rd) PARTS or SHARES of the defendant, J. Fox; the
10 (6123rd) PARTS or SHARES of the defendant, F. Foster Bankhardt; the
10 (6123rd) PARTS or SHARES of the defendant, Frederick Sharp; the
20 (6123rd) PARTS or SHARES of the defendant, William McGregor; the
10 (6123rd) PARTS or SHARES of the defendant, James Walton; the
5 (6123rd) PARTS or SHARES of the defendant, J. G. Smith; the
10 (6123rd) PARTS or SHARES of the defendant, Westney Fearon; the
5 (6123rd) PARTS or SHARES of the defendant, Jas. Josiah Shepherd; the
10 (6123rd) PARTS or SHARES of the defendant, J. A. Parker; the
5 (6123rd) PARTS or SHARES of the defendant, John Wilkinson; and the
5 (6123rd) PARTS or SHARES of the defendant, Wm. Holland respectively,
Of and in the said MINE.

JOSEPH ROBERTS, Solicitor, Truro
(Agent for Messrs. R. W. Childs and Batten, 25, Coleman-street, London, Plaintiff's Solicitors).
Dated Registrar's Office, Truro, 25th March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE CARN CAMBORNE MINE.

TO BE SOLD, pursuant to an Order made in the Cause of Harding *v.* Johns and Others, dated the 17th day of February, 1869, at the Registrar's Office, at Truro, on Wednesday, the 7th day of April next, at One o'clock in the afternoon, the

45 (5975th) PARTS or SHARES of the defendant, Bennett Johns (the Executor of J. H. Johns, deceased); the
20 (5975th) PARTS or SHARES of the defendant, Mrs. W. W. Fielder; the
5 (5975th) PARTS or SHARES of the defendant, W. H. Bishop; and the
5 (5975th) PARTS or SHARES of the defendant, James Ayson,
Or and in the said MINE.

JOSEPH ROBERTS, Solicitor, Truro
(Agent for Messrs. R. W. Childs and Batten, 25, Coleman-street, London, Plaintiff's Solicitors).
Dated Registrar's Office, Truro, 25th March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE NANGILES MINE.

TO BE SOLD, pursuant to an Order made in the Cause of Matthews *v.* Warne, dated the 5th day of March instant, at the Registrar's Office, at Truro, on Wednesday, the 7th day of April next, at Twelve o'clock at noon, the

5 (1024th) PARTS or SHARES of the defendant, George Warne,
Of and in the said MINE.

JOSEPH ROBERTS, Truro, Plaintiff's Solicitor.
Dated Registrar's Office, Truro, 25th March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN RE NANGILES MINE.

TO BE SOLD, pursuant to an Order made in the Cause of Matthews *v.* Pike and Another, dated the 18th day of December, 1868, at the Registrar's Office, at Truro, on Wednesday, the 7th day of April next, at Twelve o'clock at noon, the

12 (1024th) PARTS or SHARES of the defendant, the Hon. Maurice George John Ponsonby,
Of and in the said MINE.

JOSEPH ROBERTS, Truro, Plaintiff's Solicitor.
Dated Registrar's Office, Truro, 25th March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WEST PAR CONSOLS MINING COMPANY.—By direction of His Honour the Vice-Warden, Notice is hereby given, that on Tuesday, the 13th day of April next, at One o'clock in the afternoon, at the Registrar's Office, at Truro, in the county of Cornwall, this Court will PROCEED to MAKE a CALL of TWO SHILLINGS PER SHARE on all the contributories of the above-named company under class A.

All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

E. SMIRKE, Vice-Warden.
FREDERICK MARSHALL, Assistant-Registrar of the said Court.
Dated Truro, March 25th, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL HARTLEY MINING COMPANY.—By direction of His Honour the Vice-Warden, Notice is hereby given, that on Monday, the 12th day of April next, at One o'clock in the afternoon, at the Registrar's Office, at Truro, in the county of Cornwall, this Court will PROCEED to MAKE a CALL of ONE POUND TWO SHILLINGS AND SIX PENCE PER SHARE on all the contributories of the above-named company under class A.

All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

E. SMIRKE, Vice-Warden.
FREDERICK MARSHALL, Assistant-Registrar of the said Court.
Dated Truro, 25th March, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL CURTIS MINING COMPANY.—By direction of His Honour the Vice-Warden, Notice is hereby given, that on Tuesday, the 13th day of April next, at Eleven o'clock in the forenoon, at the Registrar's Office, at Truro, in the county of Cornwall, this Court will PROCEED to MAKE a CALL of SIX POUNDS PER SHARE on all the contributories of the above-named company under class A.

All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

E. SMIRKE, Vice-Warden.
FREDERICK MARSHALL, Assistant-Registrar of the said Court.
Dated Truro, March 25, 1869.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TRELOWETH MINING COMPANY.—By direction of His Honour the Vice-Warden, Notice is hereby given, that on Monday, the 12th day of April next, at Twelve o'clock at noon, at the Registrar's Office, at Truro, in the county of Cornwall, this Court will PROCEED to MAKE a CALL of TEN SHILLINGS PER SHARE on all contributories of the above-named company under class A.

All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

E. SMIRKE, Vice-Warden.
FREDERICK MARSHALL, Assistant-Registrar of the said Court.
Dated Truro, March 25, 1869.

TO CAPITALISTS AND OTHERS.
VALUABLE GREEN SLATE QUARRIES TO BE LET.

TO BE LET, BY TENDER, the WHOLE of those SPLENDID GREEN SLATE QUARRIES, known as—

THE BUTTERMERE SLATE QUARRIES,

in CUMBERLAND, which comprise, amongst others, THE HONISTER CRAGG QUARRY, THE EWE CRAGG QUARRY, and THE DUBBS QUARRY.

These quarries are about equi-distant from the towns of Cockermouth and Keswick, whence there is railway communication to the sea and to all parts of Great Britain.

The slate produced from the quarries is of a beautiful "sea-green" tint, and its well-known durability renders it peculiarly suitable for the roofing of churches, public buildings, and mansions. Valuable veins of slate and flags exist in connection with those already worked, and may be included in the tenders. The quantity capable of being raised is practically illimitable.

Tenders will be received for the whole of the quarries, or for any of them separately. The owner does not bind himself to accept the highest or any tender. To capitalists such an opportunity of investment is seldom offered, and an early visit is solicited.

To view, apply to Mr. L. NEWBY, "The Castle," Cockermouth. Further particulars may be obtained of the undersigned, to whom tenders may be addressed until the 20th April next. WILLIAM J. CLUTTON, Land Agent, York.
York, March, 1869.

GLAMORGANSHIRE.

SALE of VALUABLE COLLIERIES, situate in the parishes of LLANWONNO, GILLYGARE, and LLANTRISSANT, in the county of GLAMORGAN, known as

THE DARRANDDU, TROEDYRHIWFUWCH, AND CYMMER COLLIERIES.

MESSRS. DENNING, SMITH, AND CO., WILL SELL, BY AUCTION, at the Royal Hotel, Cardiff, on Tuesday, the 27th day of April, at One for Two o'clock precisely (unless previously disposed of by private contract, of which due notice will be given), the above-mentioned

VALUABLE MINERAL PROPERTIES,

In the following or such other lots as may be agreed upon at the time of sale.

LOT 1.—All that COLLIERY, known by the name of the NEW DARRANDDU, situate in the parish of LLANWONNO, in the county of GLAMORGAN, extending over an area of upwards of 350 acres, and held as follows:—

78a. 0r. 13p. under Pwl Howell Farm, are held under an Indenture of Lease, dated 8th June, 1863, for a term of ten years which can be extended to another five years.

122a. 1r. 17p. under Pennywall Farm, are held under an Indenture of Lease, dated 12th July, 1865, for the term of 21 years, from 1st January, 1864.

The remainder—viz., 150a. 0r. 17p. under Blaenhenwyse Farm—is held under an Indenture of Lease, dated 12th September, 1865, for a term of 20 years, from 1st January, 1865.

This property forms the outlet for a further area of unleased mineral property containing the Darranddu seam of coal.

The coal is very hard, and is especially adapted for locomotive and house purposes, and it commands at all times a ready sale; in fact, it is the only colliery that can now work the celebrated Darranddu vein.

The area of coal unworked is 220 acres, or thereabouts.

The New Darranddu Colliery is worked by a drift, and at present is equal to an output of 4000 tons per month.

The drift is worked by a powerful engine, nearly new; the plant and machinery are in good working order.

The coal is conveyed to the siding on the Taff Vale Railway over a self-acting incline, and the colliery is in direct railway communication with the shipping port of Cardiff, from which it is distant 14 miles.

LOT 2.—All that COLLIERY, known as the CYMMER LEVEL COLLIERY, situate in the parish of LLANTRISSANT, in the county of GLAMORGAN, comprising an area of 155 acres of the Rhonuda No. 2 seam, held under lease for a term of 21 years from July 1st, 1858.

This colliery is worked by means of a shaft, but the unworked coal can be obtained by means of a level, at a small outlay. It is in direct railway communication with Cardiff, from which it is distant 16 miles.

The coal is well known as a superior coal for smelting and puddling iron, and for general manufacturing purposes; it is also a good house coal.

The area of unworked coal is 80 acres, or thereabouts.

The present openings will admit of an output of 150 tons per day, the present get averaging more than 100 tons per day.

Also, at the same time and place, will be sold about 6000 tons of COKE, in stock at the colliery, belonging to the same proprietors.

There are 36 coke ovens, now rented by the lessees, within a few yards of the colliery, for converting the small coal into coke, which can be rented by the purchaser of this colliery.

LOT 3.—All that COLLIERY, known as the TROEDYRHIWFUWCH, situate in the parish of GILLYGARE, in the county of GLAMORGAN, containing the Brithdir seam and a seam below, extending over an area of 100 acres, or thereabouts, held under a lease for a term of 99 years, from 6th October, 1859.

This colliery is worked by a level, and adjoins the Rhymney Railway, and is in direct railway communication with the shipping ports of Cardiff and Newport. It is distant 22 miles from Cardiff, and 16 from Newport.

The present proprietors are now working the Brithdir vein, of which about 20 acres or thereabouts remain unworked.

The colliery is producing at the rate of 1500 tons per month, and the workings are sufficiently opened to admit of an output of 2500 tons per month.

The coal is particularly well adapted for smelting and puddling iron, &c.; it is also a superior coking and gas coal, and may be worked at a very low cost.

All the above-mentioned collieries have good roofs, and very little timber is required in working them. They are free from gas, and well ventilated.

The plant comprises engines, trams, weighing machines, and all the usual and necessary appliances, including horses' stables, smith's shops, &c.

The collieries and plans can be inspected on applying to the manager, Mr. BEACHIM, Oakfield-villa, Pontypridd, Glamorganshire.

The leases can be seen at the offices of the solicitors, Messrs. FUSSELL and PRICHARD, Bristol, of whom all further particulars may be obtained; or of Messrs. DENNING, SMITH, and Co., Shannon-court, Bristol, and Commercial-street, Newport, Monmouthshire.

TO CONTRACTORS AND OTHERS.

SURPLUS STOCK OF STEAM MACHINERY.

TO BE SOLD, BY AUCTION, at Banbury, by Messrs. CLARKE and BARROWS, on Easter Tuesday, March 30, 1869, at Eleven o'clock, about FORTY high-class new and secondhand PORTABLE STEAM ENGINES, from 3 to 25-horse power. A number of very superior THRESHING MACHINES, CULTIVATING APPARATUS, SAW TABLES, MORTAR MILLS, AGRICULTURAL IMPLEMENTS, &c.

For catalogues of sale, apply to Messrs. BARROWS and STEWART, Engineers, Banbury; or to the Auctioneers, No. 38, Cannon-street, Birmingham.

CLEVELAND DISTRICT.
TO IRONMASTERS AND CAPITALISTS.

VALUABLE IRONSTONE PROPERTY FOR SALE.

TO BE SOLD, BY PRIVATE CONTRACT, a VALUABLE IRONSTONE LEASEHOLD PROPERTY in the CLEVELAND DISTRICT, near a shipping port, and intersected by two main lines of railway.

The mine is in full working order, and capable of a very large production; the property includes COTTAGES, WORKSHOPS, PUMPING and WINDING ENGINE, PLANT, TOOLS, &c. There is an excellent site at the mine for the erection of furnaces and rolling mills. Iron of excellent quality can be made on the spot at a lower price than in any other district, and from it large supplies are now regularly sent to Scotland and Wales.

The property has to be sold in consequence of the death of the proprietor, but the executors are willing to allow a portion of the purchase-money to remain on security.

Further particulars may be obtained from Messrs. G. A. CRAWLEY, ARNOLD, and GREEN, Solicitors, 20, Whitehall-place, London.

NORTHAMPTONSHIRE IRON ORE.

TO BE LET, on royalty, ONE HUNDRED ACRES of IRON ORE, about seven miles from NORTHAMPTON. The IRONSTONE has been proved, and is of the best quality, lying near to the surface.

It is most convenient for working, and of easy access from the Northampton and Peterborough Railway. The nearest station to the property is Castle Ashby.

For further particulars, apply to Messrs. THYNNE and THYNNE, 11, Great George-street, Westminster, S.W.; or to Mr. SAMUEL BAILEY, Mining Engineer, The Pleck, Walsall.

A FESTINIOG SLATE QUARRY ON SALE.

THE BWLCH-Y-SLATER SLATE QUARRY, situated in the parish of FESTINIOG, and in the centre of that well-known slate district, is NOW ON SALE, BY PRIVATE TREATY, owing to the death of the late proprietor.

The quarry produces slates of first-class quality, of which there is apparently an inexhaustible supply. It is provided with the requisite plant for being properly and profitably worked, and has already been worked to a profit, and is parted with solely owing to the death of the proprietor. It is situated close to the Portmadoc and Festiniog Railway.

For particulars, apply to Mrs. WILLIAMS, Bennarfawr, Dyffryn, Carnarvon.

NORTH WALES.

GREEN AND BLUE SLATE QUARRY.—The WHOLE or ONE HALF of one of the FINEST QUARRIES in WALES FOR SALE. Within 150 yards of a railway station, on a main line of railway, and within 1½ mile of a shipping port, accessible by the same line.

For price and particulars apply to Mr. THOMAS HARVEY, St. Clement's House, St. Clement's-lane, London.

March 20, 1869.

TO BE LET, a SLATE AND SLAB QUARRY, with PLANT, and good water power. Distance—by good road from a shipping port, 3½ miles; from a railway station, 2½ miles.

As a speculation, offering quick returns from a small outlay, this can confidently be recommended.

For further particulars, and to view the premises, apply to Mr. ROBERT OWEN JONES, Land Agent, Pwllheli, North Wales.

NORTH WALES—QUEEN'S FERRY, FLINT.
CLOSE TO THE RAILWAY.

TO BE SOLD OR LET, DESIRABLE FREEHOLD MANUFACTURING PREMISES, with ENGINE-POWER and LAND.—A plot of about one acre, with substantial factories, engine-house chimneys, stable, outbuildings, and sheds, suitable for any manufacturing purpose. ENGINE of most recent construction, and BOILER nearly new.

For further particulars, apply to JOHN TEMPLE, 32, Redcross-street, Liverpool.

TO CAPITALISTS AND OTHERS FAMILIAR WITH COPPER MINING.

RICH VEINS OF COPPER ORE (Sulphuret and Grey) have been FOUND on the BANKS of the NIPISIGUIT RIVER, Province of NEW BRUNSWICK. The grey ore yielded on analysis in England 60 per cent. of copper. The veins are from a few inches to 2½ feet wide. The Harbour of Bathurst is but thirteen miles distant, and the tract of the Intercolonial Railway, now in course of construction, about six.

The proprietor of the land, being unacquainted with mining operations, is DESIROUS either TO SELL the PROPERTY on moderate terms, or to JOIN an EXPERIENCED PARTY or COMPANY in WORKING these LODES. Indications of other mineral lodes are to be found at various places within a circuit of 15 to 20 miles, chiefly in wild Crown lands, the right to which might be obtained on easy terms, if early steps be taken with that object, before they attract more general attention.

Further information may be obtained on application to HENRY W. BALDWIN, Esq., Bathurst, New Brunswick.

Bathurst, N.B., 5th February, 1869.

RAILWAY WAGON WORKS, BARNSLEY.

MESSRS. G. W. AND T. CRAIK
ARE PREPARED TO
SUPPLY COAL AND COKE WAGONS
OF EVERY DESCRIPTION,
Either for cash, or by deferred payments through wagon-leasing companies

WAGONS PROMPTLY REPAIRED.

TANK LOCOMOTIVES,

FOR SALE OR HIRE.
HENRY HUGHES AND CO.,
LOUGHBOROUGH.

THE BEVERLEY IRON AND WAGON COMPANY

(LIMITED),
MANUFACTURERS OF RAILWAY WAGONS, WHEELS AXLES, LORRYS, CARTS, WOOD WHEELS, &c.,
IRONWORKS, BEVERLEY, YORKSHIRE.

WIRE ROPE TRANSPORT.

THIS SYSTEM is applicable to the TRANSPORT of MINERALS, of AGRICULTURAL PRODUCE, and of MERCHANDISE in general. Its cost per mile is less than that of any known description of road or way, commencing at £250 per mile. It can be carried over any description of country without more engineering work than is necessary in constructing a telegraph line. It is admirably suited for establishing BRANCH GOODS LINES and EXTENSIONS in NEW COUNTRIES. Its working cost little exceeds that of regular railways, and is not one-third that of the common road transport. A line of three miles can be seen in operation. M. BEALE, Secretary.
The Wire Tramway Company, 21, Gresham-street, E.C.

IMPORTANT NOTICE.

TO GOLD AND SILVER MINING COMPANIES.

THE BRITISH, COLONIAL, AND FOREIGN PATENT GOLD AND SILVER AMALGAMATING AND WASHING MACHINE COMPANY
(UNDER "RICKARD AND PAUL'S PATENT")
Are prepared to EXECUTE IMMEDIATE ORDERS for the AMALGAMATING MACHINE in fourteen days from receipt of order.
Applications for prices, prospectuses, &c., to be made to the Secretary,
MR. H. C. HOUSE,
1 and 2, GREAT WINCHESTER BUILDINGS, LONDON, E.C.

COLLINGE'S PATENT SPONGE CLOTHS,

FOR CLEANING STEAM ENGINES, EVERY DESCRIPTION OF MACHINERY, LAMPS, WINDOWS, &c., &c.
Being a woven fabric, they are easily washed, say 20 times, consequently do not cost one-fourth the price of cleaning waste.
TRADE ALLOWANCE MADE TO DEALERS, FACTORS, AND AGENTS.
Samples and prices upon application to—
DANIEL COLLINGE AND SON,
1, PEEL STREET, MANCHESTER.

GENERAL MINING COMPANY FOR IRELAND

(LIMITED).

MAKERS OF ZINC OXIDE.

OFFICES,—29, WESTMORELAND STREET, DUBLIN.
MINES AND WORKS, SILVERMINES, COUNTY TIPPERARY.

The Directors beg to intimate to PAINT and COLOUR MAKERS, INDIA RUBBER MANUFACTURERS, SHIPPERS, and the TRADE generally, that they have COMPLETED the ERECTION of WORKS for the MANUFACTURE of ZINC OXIDE, and that they are now producing ZINC WHITE of GREAT EXCELLENCE and PURITY.
Samples and terms shall be forwarded on application.
H. C. FOWLER, Secretary.
29, Westmoreland-street, Dublin, December 10, 1868.

ESTABLISHED MORE THAN HALF A CENTURY.

THE TAVISTOCK FOUNDRY, IRONWORKS, AND HAMMER MILLS,

which have been carried on for more than half a century by
MESSRS. GILL AND CO.,
and obtained a
HIGH REPUTATION FOR
SHOVELS AND OTHER TOOLS
as well as for
ENGINEERING AND FOUNDRY WORK.
have been purchased by
MESSRS. NICHOLLS, MATHEWS, AND CO.,
BEDFORD IRONWORKS, TAVISTOCK.

For thirty years Messrs. NICHOLLS, MATHEWS, and Co., have been the proprietors of the latter works, but have now removed to the

TAVISTOCK FOUNDRY,

where, having the advantage of a never-failing stream of water of upwards of 200-horse power, they will have increased facilities for speedily and satisfactorily executing all orders entrusted to their care.
Manufacturers of STEAM ENGINES and BOILERS, on the newest principle; pump work, brass and iron; hammered iron shafts, of all sizes; miners' steel and iron tools.
N., M., AND Co. have had a LARGE EXPERIENCE in PREPARING MACHINERY for FOREIGN MINES, as well as selecting competent mechanics to erect the same.
N., M., AND Co. have always a LARGE STOCK of SECOND HAND MATERIALS.

MILNER'S STRONG HOLDFAST AND FIRE-RESISTING SAFES,

CHESTS, DOORS, AND STRONG ROOMS,
With the progressive and recent improvements effected after half a century's experience, effectually guard against FIRE and BURGLARS.
LIVERPOOL, MANCHESTER, SHEFFIELD, LEEDS, HULL, and
47A, MOORGATE STREET, CITY, LONDON.

ASSAY OFFICE AND LABORATORY,

No. 2, CROWN CHAMBERS, CROWN COURT,
THREADNEEDLE STREET,
CONDUCTED BY W. T. RICKARD, F.C.S., &c.
(Late MITCHELL and RICKARD).
Assays and analyses of every description of mineral and other substances manures, &c.
Gentlemen going abroad for mining purposes instructed in assaying, and the most improved methods of reducing gold, silver, and other metals.
MINING PROPERTIES INSPECTED AND REPORTED ON.

Now ready, price 2s.,

THE NORTH SOMERSETSHIRE COAL FIELD.—

BY SEWARD W. BRICE, B.A.
OPINIONS OF THE PRESS.—"A work of great practical value to all interested n the development of a great South England Coal Field."—*Mining Journal.*
"The task of estimating the quantity of coal still remaining in the North Somersetshire Coal Field is very difficult. Here we have a very troubled field of geological enquiry, and of great perplexity and expense to the coal miner. Mr. Brice understands his subject, and his style of writing is clear and interesting."—*Colliery Guardian.*
London: BEMROSE and LOTHIAN, 21, Paternoster-row; or post free from the *Gazette* Office, Tiverton.

THE NEWCASTLE CHRONICLE AND NORTHERN COUNTIES ADVERTISER. (ESTABLISHED 1764.)

Published every Saturday, price 2d., or quarterly 2s. 2d.
THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER.
Offices, 42, Grey-street, Newcastle-upon-Tyne; 50, Howard-street, North Shields; 195, High-street, Sunderland.

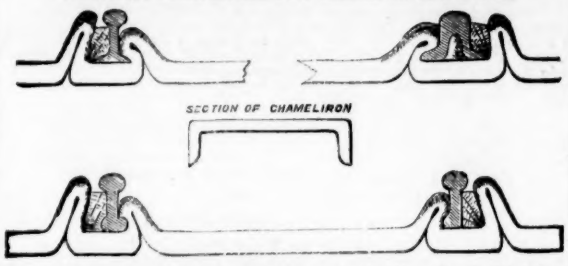
SPENCER'S PULMONIC ELIXIR possesses every property which can be beneficial in cases of COLDS, COUGHS, ASTHMA, and all complaints of the chest and lungs. Prepared with great care by T. ROBERTS and Co., 8, Crane-court, Fleet-street, London; and can be obtained of all respectable medicine vendors in the kingdom, in bottles at 1s. 1½d. and 2s. 9d. each.

CURE YOURSELF BY THE PATENT SELF-ADJUSTING CURATIVE AND ELECTRIC BELT.—Sufferers from spermatorrhœa nervous debility, painful dreams, &c., can now cure themselves by the only guaranteed remedy in Europe, protected by Her Majesty's great seal.
Free for one stamp by H. JAMES, Esq., Percy House, Bedford-square, London.
N. B. — MEDICINE AND FEES SUPERSEDED.
Reference to the leading Physicians of the day.
A TEST GRATIS. SEND FOR DETAILS.

IMPORTANT TO COLLIERY OWNERS, AND THE PROPRIETORS OF IRONSTONE, LEAD, AND COPPER MINES, TRAMWAYS, &c.

THE PATENT WROUGHT-IRON SLEEPER,

Combining a SLEEPER and TWO CHAIRS IN ONE PIECE.



The SLEEPER can be made to suit any required section of rail, either double-headed, flat-bottomed, or bridge, and the channel section of iron, of which the sleeper is made, can be manufactured of various breadths, and of weights varying from 6 lbs. to 20 lbs. per yard.

Among the advantages of the WROUGHT-IRON SLEEPER are—
1.—The way can be laid more quickly, and with less manual labour.
2.—The channel section of the iron sleeper beds itself more firmly in the ballast, with the most rigid accuracy of guage.
3.—The continued re-laying of rotten or broken wooden sleepers is no longer required.
4.—The iron sleeper is cheaper in the long run than the wooden, which is proved by the fact that on the Continent, where the cost of wood is considerably less than in England, the iron sleepers are universally used.
5.—All the losses or damages arising from the ordinary system, from the way getting out of guage, chairs or sleepers breaking, chair fastenings becoming loose and injuring the horses' feet, are avoided.

For further particulars, apply to the Sole Licensees,—
GEORGE HOPPER AND SON,
BRITANNIA IRONWORKS,
FENCE HOUSES, DURHAM,
IRON FOUNDERS, ENGINEERS, & IRON MANUFACTURERS,
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MANUFACTURERS OF CAST AND WROUGHT-IRON WHEELS, SPOKES, BOLTS AND NUTS, BAR, ANGLE, AND TEE-IRON, RAILS,
IRON SCREENS, CAGES, AND COAL TUBS.
SMITH WORK AND FORGINGS OF EVERY DESCRIPTION.

RAILS FOR SIDINGS, &c.,

Of DOUBLE-HEAD, FLANGE, and BRIDGE SECTIONS,
CHAIRS, FISH-PLATES, AND POINTS AND CROSSINGS,
COLLIERY RAILS for underground and tramways,
In stock, for prompt delivery, by
ROBERT WRIGHTSON, IRON MERCHANT
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It is particularly well adapted for situations where the quantity of water is variable, and where all other wheels fail.
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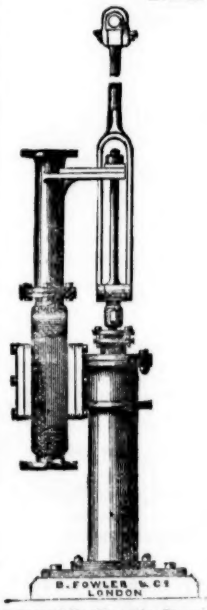

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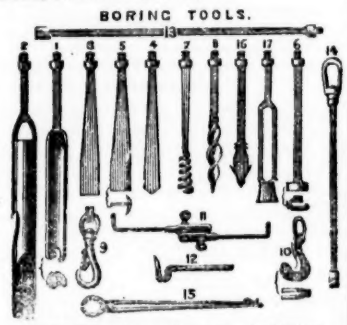

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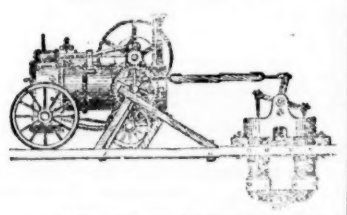
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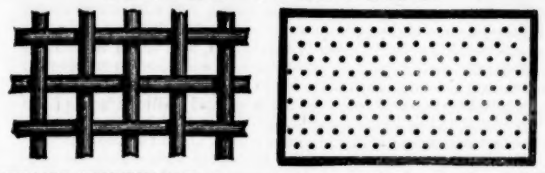

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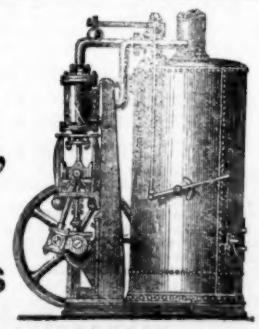

Fig. 86.

GWYNNE & Co.'s IMPROVED CHAIN-PUMP,
Worked direct by Steam-Engine.

These pumps work without valves or packing, and raise a considerable quantity of water. They will lift sand, mud, or grit without choking, and require only very inexpensive repairs.

Fig. 84.

GWYNNE & Co.'s DOUBLE-ACTING PUMPING-ENGINE.
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Fig. 106.

Fig. 139.

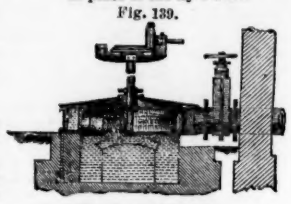

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Fig. 40.

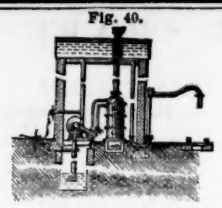

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Fig. 142.

GWYNNE & Co.'S IMPROVED PORTABLE STEAM-ENGINE.

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Fig. 43.

GWYNNE & Co.'s PATENTED WIND-POWER PUMPING MACHINERY.
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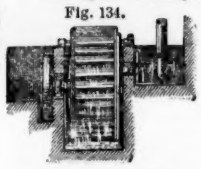
Fig. 134.



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Extremely useful wherever water-power is available. The centrifugal pump is worked by gear from the water-wheel. Suitable for supplying country mansions with water. No expense when once fitted. Made of all powers.

Fig. 94.

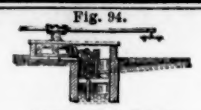

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Fig. 22.

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Fig. 144.

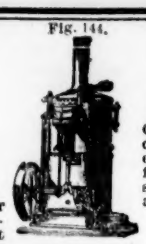

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Fig. 146.

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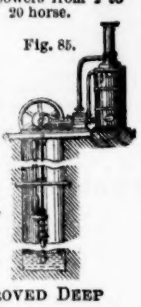
Fig. 85.



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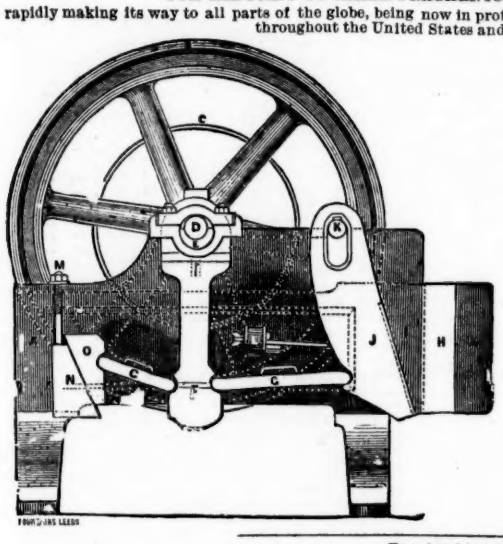

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BLAKE'S PATENT STONE BREAKER,

In Chancery.

BLAKE v. ARCHER, NOVEMBER 12, 1867.

His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE'S, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

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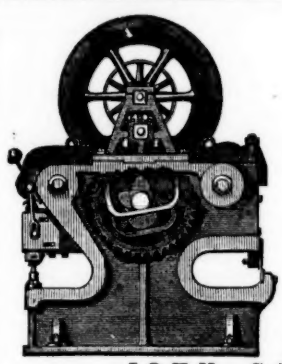

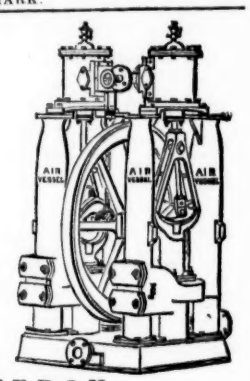

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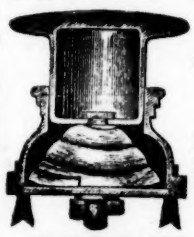

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RAILWAY CARRIAGE COMPANY (LIMITED.
ESTABLISHED 1847.
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Which have been proved INEXPLOSIVE in the highest obtainable current of gas, of 48 ft. per second. No. 1 weighs 24 ozs., is simple in its construction, burns with a steady and nearly uniform flame in moderate currents, gives a good light, and is in every respect a practicable lamp. Price, 9s. each; if in quantities of a dozen or upwards, 8s. 6d. each, delivered free. Orders received by—
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CHANGE OF NAME.
THE ASSOCIATION FOR THE PREVENTION OF STEAM-BOILER EXPLOSIONS.
ESTABLISHED 1854.
OFFICES,—41, CORPORATION STREET, MANCHESTER.
PRESIDENT—WILLIAM FAIRBAIRN, Esq., C.E., F.R.S., LL.D., &c.
CHIEF ENGINEER—MR. LAVINGTON E. FLETCHER, C.E.

At the last ANNUAL MEETING, held in the Town Hall, Manchester, on Tuesday, March the 9th (WILLIAM FAIRBAIRN, Esq., LL.D., &c., in the chair), the title of the association was modified as follows:—"THE MANCHESTER STEAM USERS' ASSOCIATION FOR THE PREVENTION OF STEAM-BOILER EXPLOSIONS, AND FOR THE ATTAINMENT OF ECONOMY IN THE APPLICATION OF STEAM," so that it may be cited in brief—

THE MANCHESTER STEAM USERS' ASSOCIATION.

This association undertakes the periodical inspection of steam-boilers, with a view of preventing explosions, and gives a pecuniary guarantee to the amount of £300 on each approved boiler, so that in the event of explosion, whether it arise from collapse of the furnace tubes, rupture of the shell, or failure of any part of the boiler whatever, all damage done thereby, other than by fire, will be made good to the extent of £300.

The association also assists its members by advice on the construction of new boilers, and other matters relating to economy and safety in the use of steam.

Terms: ONE GUINEA AND A HALF PER ANNUM PER BOILER within 40 miles of Manchester, accessible by rail. Beyond that distance, special arrangements made according to circumstances.

TWO GUINEAS PER ANNUM FOR CORRESPONDING MEMBERS, who receive copies of the Association's Monthly Report, and have the opportunity of consulting the Chief Engineer. ROBERT TONGE, Secretary.
41, Corporation-street, Manchester, March, 1869.

BRAGANZA GOLD MINING COMPANY (LIMITED)
IN THE PROVINCE OF MINAS GERAES, BRAZIL.
Capital £50,000, in 50,000 shares of £1 each.
Deposit for registered shares 2s. 6d. per share on application; 2s. 6d. on allotment.
Calls not to exceed 2s. 6d. per share, nor to be made at intervals of less than three months.
Deposit for fully paid-up scrip (to bearer) 2s. 6d. per share on application; the balance of 17s. 6d. on allotment.
CHAIRMAN.
CHARLES MORRIS, Esq., Director of the United Mexican Mining Company.
BANKERS.
THE CONSOLIDATED BANK, Threadneedle-street, and its Branches.
BROKERS.
Messrs. GEORGE BURNARD and Co., 69, Lombard-street, E.C.
SECRETARY (pro tem.)—WILLIAM EDWARDS, Esq.
OFFICES,—No. 4, COLEMAN STREET BUILDINGS (48A), MOORGATE STREET, LONDON, E.C.

The Braganza Company's Mine is situated (as shown by the map on the prospectus) about midway between the St. John del Rey Company's Mine, Morro Velho, and that of the Don Pedro North del Rey Company. In the same district are also the celebrated Gongo Soco (which has yielded gold to the value of £1,500,000 sterling) and the Rossa Grande and Taquaril Mines.

Captain William Williams, who resided within two miles of the Braganza Company's Mine for ten years, and knows it well, reports of it—"In all my travels through South America and Australia I never saw so large blocks of quartz from any lode so rich in gold as those from this mine."

Full prospectuses, with maps and full particulars, and forms of application for shares, may be obtained of the Secretary or Brokers, as above.

BRITANNIA LIFE ASSURANCE AND INVESTMENT COMPANY.
(LIMITED).
CHIEF OFFICE,—1, LANCASTER PLACE, STRAND, LONDON.

This company has inaugurated a NEW PLAN of POPULAR ASSURANCE for miners, by forming a MINERS' SICK AND ACCIDENT FUND.

Policies will be issued without respect to age at a uniform quarterly premium of 5s.

Managers of mines and other public works are earnestly requested to appoint correspondents in each of their works for enrolling members.

Apply, for further information, to—
PERCIVAL HINDMARSH, Secretary.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1500	Alderley Edge, c, Cheshire*	10 0 0	—		10 6 8	0 5 0	Jan. 1869
200	Botallack, t, c, St. Just	91 5 0	250	230 250	528 5 0	10 0 0	Feb. 1869
4000	Brookwood, c, Buckfastleigh	1 11 0	—		0 12 6	0 2 6	Aug. 1868
1000	Bronfloyd, l, Cardigan*	12 0 0	—	20½	10 17 0	0 10 0	Jan. 1869
5094	Bwlch Consols, s-l, Cardigan	4 0 0	—		0 5 0	0 5 0	June 1868
6400	Cashwell, l, Cumberland*	2 10 0	—		0 3 0	0 1 6	Aug. 1868
916	Cargoll, s-l, Newlyn	15 5 7	—		15 15 0	0 10 0	Jan. 1869
1280	Chanticleer, l, Flint	0 7 8	—		0 1 0	0 0 6	Nov. 1868
2450	Cook's Kitchen, c, Illogan‡	19 14 9	16	15 16	1 17 0	0 5 0	Jan. 1869
509	Creegbrawse and Penkevil, t	—	—		2 5 0	1 5 0	April 1868
867	Cwm Erfin, l, Cardiganshire*	7 10 0	—		29 13 0	0 10 0	Jan. 1869
128	Cwmystwith, l, Cardiganshire	60 0 0	—		385 10 0	2 0 0	Feb. 1869
280	Derwent Mines, s-l, Durham	300 0 0	—		177 0 0	2 10 0	July 1868
1024	Devon Gt. Consols, c, Tavistock†	1 0 0	310	290 310	1128 0 0	4 0 0	Mar. 1869
656	Ding Dong, t, Gulval‡	49 14 6	—		2 0 0	1 10 0	Mar. 1869
358	Dolcoath, c, t, Camborne	128 17 6	—	475 500	874 10 0	10 0 0	Feb. 1869
6144	East Caradon, c, St. Cleer†	2 14 6	8¼	8 8¼	14 11 6	0 2 0	July 1867
300	East Darren, l, Cardiganshire	32 0 0	—		164 10 0	2 0 0	Feb. 1869
128	East Pool, t, c, Pool, Illogan	24 5 0	—		457 10 0	5 0 0	Mar. 1869
1906	East Wheal Lovell, t, Wendron	3 9 0	9¼	9 9½	4 11 6	0 10 0	Jan. 1869
2800	Foxdale, l, Isle of Man*	25 0 0	—		72 10 0	0 10 0	Jan. 1869
5000	Frank Mills, l, Christow	3 18 6	4	3¾ 4	3 9 6	0 4 0	Feb. 1869
3950	Gawton, c, Tavistock	3 10 6	2¼		0 3 0	0 3 0	Jan. 1868
15000	Great Laxey, l, Isle of Man*	4 0 0	20	19½ 20	10 5 0	0 10 0	Mar. 1869
3000	Great Northern Manganese*	5 0 0	—		—	5 p.ct.	Feb. 1869
5908	Great Wheal Vor, t, c, Helston†	40 0 0	15½	15 16½	14 1 0	0 5 0	Mar. 1869
1024	Herodsfoot, l, near Liskeard†	8 10 0	45	44 46	49 10 0	1 10 0	Feb. 1869
165	Levant, c, t, St. Just	10 8 1	—	29 30	1099 0 0	4 0 0	Jan. 1869
400	Lisburne, l, Cardiganshire	18 15 0	—		512 0 0	1 10 0	Jan. 1869
3000	Maes-y-Safn, l, Flint*	20 0 0	—		4 0 0	0 5 0	Oct. 1868
9000	Marke Valley, c, Caradon	4 10 6	9	8⅝ 8⅞	4 19 0	0 5 0	Jan. 1869
3000	Minera Boundary, l, Wrexham*	1 0 0	—		0 13 0	0 3 0	Mar. 1866
1800	Minera Mining Co. l, Wrexham*	25 0 0	175		248 13 6	5 0 0	Feb. 1869
20000	Mining Co. of Ireland, c, l, cl.	7 0 0	—	11¾	—	9 p.ct.	July 1868
40000	Mwyndy Iron Ore*†	3 5 0	—		0 11 6	0 3 0	Feb. 1869
2000	North Levant, t, c, St. Just	10 12 0	12	11½ 12	0 5 0	0 5 0	Mar. 1869
200	Parys Mines, c, Anglesey*	50 0 0	—		162 10 0	2 10 0	Aug. 1868
5000	Penhalls, t, St. Agnes	3 0 0	—		0 2 6	0 2 6	Jan. 1869
12800	Prince of Wales, t, Calstock	0 12 6	1⅛	1 1⅛	0 8 6	0 1 0	Nov. 1868
1120	Providence, t, Uny Lelant†	10 6 7	40	40 42	86 12 6	1 0 0	Dec. 1868
512	South Caradon, c, St. Cleer†	1 5 0	—		607 10 0	5 0 0	Jan. 1869
6000	South Darren, l, Cardigan*	3 6 6	—		0 14 6	0 1 6	Feb. 1869
937	South Wh. Crofty, c, Illogan	24 10 10	14	13 13½	1 10 0	0 10 0	Feb. 1869
496	So. Wh. Frances, c, Illog.†‡	18 18 9	17	16 17	374 13 6	1 0 0	Mar. 1868
508	Summer Hill, l, Mold	3 18 6	—		2 5 6	0 5 0	Feb. 1868
6000	Tincroft, c, t, Pool, Illogan†	9 0 0	19	18 19	20 11 0	0 10 0	Mar. 1869
2000	Trumpet Cons., t, Helston	11 10 0	21	20 22	8 0 0	0 10 0	Jan. 1869
12000	Van, l, Llanidloes*	4 5 0	—	22 23	—	—	
3000	W. Chiverton, l, Perranzabuloe†	10 0 0	52½	51½ 52½	33 7 6	2 0 0	Feb. 1869
5000	West Godolphin, t, c, Breage	0 1 0	—		0 2 0	0 2 0	Dec. 1867
400	W. Wheal Seton, c, Camborne†	47 0 0	200	195 205	622 0 0	6 0 0	Feb. 1869
512	Wheal Basset, c, Illogan†	5 2 6	77½	65 75	632 10 0	1 0 0	June 1868
1024	Wheal Friendship, c, Tavistock.	20 0 0	—		300 10 0	0 10 0	Nov. 1866
512	Wheal Jane, s-l, Kea	10 15 0	50	40 45	21 0 0	2 0 0	Feb. 1869
4295	Wheal Kitty, t, St. Agnes	5 4 6	5¼	5 5¼	3 13 0	0 2 0	Nov. 1868
1024	Wheal Mary Ann, l, Menheniot†	8 0 0	19½	18 19	67 15 0	0 17 6	Mar. 1869
80	Wheal Owles, t, St. Just‡	70 0 0	—	350 360	403 3 0	52 10 0	Feb. 1869
396	Wheal Seton, t, c, Camborne	58 10 0	72½	70 75	254 15 0	2 0 0	Feb. 1868
3000	Whitewell Lead, Clitheroe*	0 5 0	—		1 0 0	0 10 0	Dec. 1867
17000	Wicklow, c, i, Wicklow	2 10 0	12½	11⅞	49 6 0	0 5 0	Mar. 1869

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
35000	Alamillos, l, Spain*†	2 0 0	2¼		0 6 6	0 2 0	Mar. 1869
20000	Australian, c, South Australia†‡	7 7 6	—		0 1 6	0 0 6	Aug. 1868
15000	Cape Copper Mining*†	7 0 0	12¾		3 17 6	0 15 0	Nov. 1868
30000	Central American Association*†	1 10 0	—		—	—	
76162	Don Pedro North del Rey*†‡	0 14 0	4⅞	4½ 4¾	1 0 3	0 6 0	Mar. 1869
70000	English and Australian, c‡	2 10 0	—		—	0 0 9	Feb. 1869
25000	Fortuna, l, Spain*†	2 0 0	2	2¼ 2¾	1 14 10	0 3 0	Mar. 1869
20000	Gen. Mining Assoc., Nova Scotia†	20 0 0	—		23 10 0	0 15 0	June 1867
10000	Gonnesa, l, Sardinia*	5 0 0	—		10 per cent.		Aug. 1868
68000	Kapunda Mining Co., Austra†‡	1 0 0	—		0 1 10	0 0 6	Nov. 1868
15000	Linares, t, Spain*†	3 0 0	3½	3 3½	11 18 4	0 3 4	Mar. 1869
50000	Panulcillo, c, Chili*†	3 0 0	—	1 1½	10 per cent.		Yearly.
6000	Peel River Land and Mineral*†	100 0 0	—		—	—	
10000	Pontgibaud, s-l, France†	20 0 0	12	11 12	5 6 2	0 19 7	Dec. 1868
100000	Port Phillip, g, Clunes†	1 0 0	1⅞	1⅝ 1¾	1 1 6	0 1 6	Jan. 1869
12000	Scottish Australian Min. Co.†	1 0 0	—	¾ 1	10 per cent.		Nov. 1868
11000	St. John del Rey, Brazil*†	15 0 0	18½	17½ 18½	81 10 0	4 5 0	Dec. 1867
4000	Swedish Sulphur Ore*	2 10 0	—		7½ per cent.		Dec. 1868
13500	Vancouver Coal Mining*†‡	6 0 0	7	7½ 8	2 2 6	0 12 0	Nov. 1868
50000	Victoria (London) [25000 £1 pd., 25000 12s. 6d. pd.]				0 9 7	0 0 7	July 1868
40000	West Canada Mining Co.*	1 0 0	—		0 19 6	0 2 6	May 1866

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
50000	Anglo-Argentine, s, Argentine Republic*	1 0 0	—		
100000	Anglo-Brazilian, g*†	0 10 0	—	¼ ⅜	Nov. 1866
12500	Anglo-Italian, g*†	0 10 0	—		Jan. 1868
20000	Australian United, g	1 0 0	—		Mar. 1868
2464	Burra Burra, c, South Australia‡	5 0 0	—		
20000	Capula, s, Mexico*†	1 17 6	1⅜		May 1868
30000	Chontales, g, s, Nicaragua*†	5 0 0	1⅝	1¼ 1½	Mar. 1868
12000	Cobre Copper Company, c, Cuba†‡*	45 10 0	—		Jan. 1868
10000	Copiapo Mining Company, Chili†‡	16 10 0	—		
10000	Copiapo Smelting, Chili*	10 0 0	—		April 1866
300	Copper Miners' Co. of South Australia* [150 £100 pd., 150 £70 pd.]				Nov. 1866
15000	El Chico Silver Mining and Reduction Company*	5 0 0	—		Nov. 1866
40000	Fortune Copper Mining Co. of Western Australia	2 0 0	—		Fully pd.
50000	Frontino and Bolivia, g, New Granada*†	1 17 6	⅞	13s. 15s.	May 1868
150000	General Brazilian*	0 10 0	¾	15s. 17s.	Feb. 1869
80000	Great Northern, c, South Australia†	1 11 6	—		Sept. 1862
50000	Javali, g, Nicaragua	2 0 0	—		Jan. 1869
7927	Lusitanian (Portugal)†‡	2 15 0	—		Dec. 1866
83640	Mariquita, g, s, New Granada	1 0 0	—		Feb. 1868
12500	Nerbudda Coal and Iron, India*†	6 0 0	—		Dec. 1867
51000	New Quebrada, c, Venezuela*†	4 4 0	—		
80000	Pestarena United, g, Italy*†	2 17 6	—		
10178	Rhenish Consolidated, l [6000 £5 pd., 4178 £2 10s. pd.]	—	—		May 1866
100000	Rossa Grande, g, Brazil*†	14 0	1½	1¼ 1½	June 1867
15000	San Pedro del Monte, s, Mexico*	0 0 0	—		Sept. 1866
10000	San Roque, l, Spain	5 0 0	—		Fully pd.
50000	Sao Vicente, Brazil*†	0 4 0	—	5s. 7s.	Oct. 1868
100000	Taquaril, g, Brazil*	0 7 6	⅝	12s. 14s.	Oct. 1868
43174	United Mexican, s, Mexico†‡*	28 5 2	2	1½ 1¾	May 1868
30000	Val Antigoria, g, Italy*	1 2 6	—		
6000	Val Sassam, s, c, l, Italy*†	8 0 0	—		Aug. 1868
45000	Victor Emanuel, c, Italy*	1 0 0	—		Fully pd.
20000	Washoe, g, Nevada†	5 0 0	—		Fully pd.
80000	Worthing, c, South Australia*†	1 0 0	⅜	¼ ⅜	Fully pd.
75000	Yorke Peninsula, South Australia	1 0 0	—		Fully pd.
45000	Yudanamutana, c, South Australia*†‡	3 0 0	2	1⅝ 1¾	Fully pd.

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
1000	Carn Brea, c, t, Illogan‡	30 0 0	22	20 22	June 1868
3000	Chiverton, l, Perranzabuloe	11 0 0	4⅜	3¾ 4	Nov. 1868
3000	Chiverton Moor, l, Perranzabuloe	7 0 6	4¾	3 3½	Feb. 1869
2880	Clifford Amalgamated, c, Gwennap‡	40 17 6	—		Oct. 1868
12800	Drake Walls, t, Calstock‡	2 10 0	1⅛	1 1⅛	Jan. 1868
512	East Basset, c, Redruth†‡	37 0 0	6	6 8	Nov. 1868
6000	East Carn Brea, c, Redruth‡	4 6 0	⅜		Feb. 1869
6000	East Grenville, c, Camborne	4 4 0	6⅛	5⅞ 6⅛	Feb. 1869
4000	East Wheal Russell, c, Tavistock†	13 13 6	—		Oct. 1868
6144	Gonamena, c, St. Cleer	7 14 3	—		Feb. 1869
5000	Great North Downs, c, Redruth	6 13 0	2	1¾ 2	Feb. 1867
4800	Great Retallack, s-l, b, Perranzabuloe	2 19 6	—		Oct. 1868
5143	Great South Tolgus, c, Redruth	1 10 6	2	17s. 19s.	Dec. 1868
1798	Great Wheal Fortune, t, Breage	31 7 4	—		Mar. 1868
6000	Hingston Down, c, Calstock†	5 12 0	—		Dec. 1868
400	New Wheal Seton, c, Camborne	63 0 0	—		Jan. 1869
3457	North Downs, c, Redruth	5 12 10	—		Mar. 1869
695	North Roskear, c, Camborne	61 19 0	—		Jan. 1869
5936	North Treskerby, c, St. Agnes	1 13 10	⅞	16s. 18s.	Feb. 1869
1024	Rose and Chiverton United, l, Newlyn	6 10 0	—		Jan. 1869
6138	South Condurrow, t, c, Camborne	4 10 6	1¼	23s. 25s.	Feb. 1869
1000	South Merllyn, l, Flint	1 0 0	1	19s. 21s.	
940	St. Ives Consols, t, St. Ives‡	10 15 0	20	20 22	Nov. 1867
920	Stray Park, c, t, Camborne†‡	45 5 8	7	7½ 8⅛	April 1868
6000	West Basset, c, Illogan†‡	2 0 0	—	35s. 40s.	May 1868
1024	West Caradon, c, St. Cleer‡‡	27 0 0	—	4⅛ 5⅛	Mar. 1869
12800	West Drake Walls, c, Calstock	0 7 6	⅜	¼ ⅜	Jan. 1869
2582	West Great Work, t, Breage	5 11 0	3½	3¼ 3¾	June 1866
3535	West St. Ives, t, c, St. Ives	0 6 0	—		Mar. 1869
512	West Wheal Frances, t, Illogan	106 15 0	50	50 52½	
5000	West Wheal Kitty, t, St. Agnes	3 4 0	—		Nov. 1869
6000	Wheal Agar, c, Illogan	7 15 0	1⅛	1¼ 1½	Jan. 1869
512	Wheal Buller, c, Redruth†‡	29 10 0	10	12½ 15	Feb. 1869
811	Wheal Emily Henrietta, c, Illogan	20 15 0	20	18 20	Jan. 1867
5724	Wheal Grenville, c, Camborne†	10 10 0	2	49s. 51s.	Dec. 1868
1040	Wheal Trelawny, s-l, Liskeard†	10 17 0	7		Mar. 1869
4096	Wheal Uny, t, c, Redruth	10 14 6	4	3½ 3¾	Oct. 1868

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.
4000	Ballacorkish, I. of Man, l, c*	4 0 0	—	
4000	Bedford Consols, c, Tavistock	3 0 6	—	⅝ ¾
4000	Bedford United, c, Tavist.*	2 17 8	2¼	1⅞ 2⅛
1248	Boscaswell, t, c, St. Just	7 6 0	—	
5000	Bottle Hill, t, Plympton	1 14 6	—	
12000	Bradda, c, l, Isle of Man*	1 10 0	—	
5000	Bryn Gwiog, l, Flint	0 18 0	—	
1200	Bryn Gwyn, l, Mold*‡	9 0 0	—	
12000	Brynpostig, Montgomery, l*	1 0 0	—	
7500	Brynystwith, l*	1 10 0	—	
1000	Budnick Consols, t	2 5 0	—	
6000	Bwadrain Cons., s-l, Cardig.	3 2 0	—	
30000	Caldbeck Fells, l, Cumberld.*	1 17 6	—	
1000	Camborne Consols, c	11 10 0	—	
11000	Cape Cornwall, t, c* [8000 £2 10s. pd., 3000 25s. pd.]			
5000	Capel Banhaglog, l, Mont.*	2 0 0	—	
914	Caradon Consols, c, St. Cleer	33 6 0	—	
1000	Cardynham China-clay*	3 0 0	—	
6000	Carn Camborne, c, Cambrn.	2 10 6	—	
20000	Carysfort [3200 £2½ pd., 16800 £1 ½ pd.]			
24000	Central Snailbeach l*	1 0 0	—	
3000	Chiverton Valley, l, Perranz.	2 0 0	—	
2048	Colquite & Callington Un., c.	1 3 0	2¾	2¼ 2¾
256	Condurrow, c, t, Camborne‡	76 10 0	—	
50000	Connorree, c, sul, Wicklow*	1 0 0	—	
983	Copper Hill, c, Redruth‡	12 10 0	—	
1000	Cornwall Hematite*	5 0 0	7½	6⅛ 7½
1055	Craddock Moor, c, St. Cleer‡	14 6 0	—	
6000	Cuddra, t, St. Austell	5 10 0	—	
300	Cwm Darren, Cardigan*	—	—	
4000	Devon & Cornwall United	5 18 0	—	
5000	Dolwen, l, Cardiganshire	0 10 0	—	
740	Eaglebrook, l, Talybont*	19 15 0	—	
1000	East Basset and Grylls, t	3 5 0	—	
4000	East Chiverton, l, Perranz.	3 6 3	1½	1 1½
4000	E. Gunnislake & S. Bed. c.	11 1 6	—	
6000	East Laxey, l, Isle of Man	3 0 0	—	
4096	E. New Wh. Lovell, t, Wend.	0 5 0	⅜	¼ ⅜
3986	East Providence, t, Lelant	—	—	
5000	E. Rosewarne, c, t, Gwinear	2 19 0	—	
6000	East Snaefell, l, I. of Man*	3 0 0	—	
5610	East Seton, c, Camborne	0 16 6	1	
2000	East Trumpet, c, t	1 15 0	—	
6000	East Wheal Reeth, Lelant	—	—	
6000	Ebury Lead Min. Co., Flint*	2 10 0	—	
1026	Garden, c, Morvah	6 15 3	—	
6000	Gen. Min. Co. for Ireland, c.	5 10 0	—	⅝
40000	Glasgow Caradon, c* [30,000 £1 p., 10,000 15s. p.]			
10000	Glan Alun, l, Mold*	0 16 0	—	13s. 14s.
5700	Goginan, Cardigan, l	12 10 0	—	
486	Grambler & St. Aubyn, c†‡	74 0 0	—	
2866	Great Caradon, c, St. Ive	4 5 9	—	
12500	Gt. No. Laxey (Isle of Man)*	1 0 0	1⅝	
6000	Great N. Tolgus, c, Illogan	1 0 0	—	
15000	Great Rhosesmor, l	5 0 0	—	
4096	Great Royalton, t	0 7 6	⅝	½ ⅝
6000	Gt. S. Chiverton, s-l, Perranz	2 0 0	2	1¾ 2
6000	Great Western, t	2 0 0	2⅛	2 2⅛
3313	Gt. Wh. Baddern, t, Devoran	7 17 6	—	
119	Great Work, t, Germoe	100 0 0	—	
10240	Gunnislake (Clitters'), t, c.	4 19 0	—	
6000	Gwydyr Park, l, Llanrwst	1 12 0	—	
250	Hallowford, s-l, Cardigan	5 0 0	—	
6400	Harwood, l, Durham*	0 7 6	—	
5000	Ironmasters' Company*	10 0 0	16	
1019	Leeds and St. Aubyn, t, c	19 13 4	—	
1000	Llywernog, l, Cardiganshire	13 0 0	—	
5120	Lovell Consols, Wendron, t.	0 6 0	1	¾ 1
6000	Maudlin, c, Lostwithiel	4 7 0	—	
6000	Mid-Wales, l,*	2 10 0	—	
4662	Minera Union, l [2500 £4 pd., 2162 £2 5s. pd.]			
1000	Montgomeryshire, l, b*	3 0 0	—	
640	Mount Pleasant, l, Mold	4 0 0	—	
1024	Nangiles, t, c, Kea	33 12 0	—	
1500	New Chiverton, l, Perranz.	1 4 6	—	
6000	New Clifford, c., Gwennap*	3 0 0	—	
6250	N. Crow Hill, l, St. Stephen	3 9 0	—	
6514	New E. Russell, c, Tavistock	0 12 6	—	
20000	New Gt. Cons., c, Tavistock*	1 0 0	—	
6400	New Pembroke, St. Blaz. t, c	1 17 0	—	
3425	New Treleigh	6 10 0	—	2⅜ 2⅝
6000	New Westminster, l	6 0 0	—	
4096	New Wh. Lovell, t, Wendron	1 19 6	2¾	2¼ 2¾
4000	N. Wh. Prosper, t, St. Hilary	1 10 0	—	
2000	N. Wh. Towan, c, t, Wendron	1 10 0	—	
5000	No. Dolcoath, c, Camborne	4 3 0	—	
1361	No. Grambler, c, Redruth	9 3 9	—	
6000	North Jane, t, s-l, Kenwyn	3 6 0	—	
4000	No. Phœnix, c, Linkinhorne	4 11 0	—	
3240	North Pool, c, Illogan	6 3 6	—	
1024	No. Retallack, c, Perrazabuloe	2 0 0	—	
6000	North Wheal Basset, c, t†	5 0 0	—	
3000	N. Wh. Chiverton, l, Perran.	5 0 0	—	
5610	N. Wh. Crofty, c, Illogan†	3 11 3	1⅛	1 1⅛
12288	Okel Tor, c, Calstock	2 7 4	—	
8000	Old Gunnislake, c, Calstock	3 9 6	—	
6400	Par Consols, c, St. Blazey†‡	2 14 6	—	
5754	Pedn-an-drea, t, Redruth	7 18 0	—	
5000	Pendeen Consols, c, St. Just	7 11 0	—	
2177	Penhale Wh. Vor, t, c, Breage	6 12 6	—	
1772	Polberro, t, St. Agnes	15 0 0	—	
12800	Princess of Wales, c, t	0 7 0	—	
6000	Prosper U., t, c, St. Hilary	9 14 0	—	
4620	Redmoor, c, t, Callington	2 1 0	—	
6000	Reinnie Laxey, l, I. of Man*	4 10 0	—	
6000	Roaring Water, c*	2 15 0	—	
2000	Rosecliff and Tolcarne, l*	9 15 0	—	
5915	Rosewall Hill & Ransom, c.	3 10 0	1½	1¼ 1½
10000	Royalton, t, St. Columb	1 1 0	—	
20500	Snaefell, l, Isle of Man*	1 0 0	—	
512	South Basset, c, Gwennap	30 10 0	—	
5000	South Carn Brea, c, t	0 5 0	—	
3000	So. Chiverton, s, l, Perranz.	6 2 6	—	
3000	So. Fowey, c, Tywardreath	1 0 0	—	
5000	So. Gt. Work, t, c, St. Hilary	0 2 6	—	
6000	South Grenville, c	0 2 0	¼	4s. 6s.
3395	So. Herodsfoot, l, Liskeard	4 10 0	—	1 1⅛
400	So. Wh. Seton, c, Camborne	87 3 0	—	
242	Spearne Moor, t, St. Just	6 2 0	—	
673	St. Ives Wh. Allen, t, St. Ives	18 18 7	—	
8771	St. Just Amalg., t,* [6000 £3 10s. pd., 2771 £2 5s. pd.			
300	Steeple Aston Iron Ore Co.	10 0 0	—	
7000	Stiperstones, l, Salop*	6 0 0	—	
6000	Tamar Valley, s-l, Beeralston	0 18 0	—	
3500	Tin Hill, t, St. Austell	1 12 0	1¼	
6000	Tin Valley, St. Neot	1 0 0	—	
548	Trelyon Consols, t, St. Ives	16 10 0	—	5
501	Tresavean and Trethurrup	16 11 0	—	3½ 4
4096	Trewetha, s-l, Menheniot	10 19 6	—	
1943	Treworlis, t, Wendron	11 15 4	—	
4200	Vigra and Clogau, c, Dolg.*‡	5 10 0	—	
256	West Damsel, c, Gwennap	38 10 0	—	
12000	W. Maria & Fortes., c, Lam.	3 13 0	—	
12800	West Prince of Wales, c.	0 11 0	—	2s. 4s.
1000	West Rose Down, c, Linking.	22 10 0	—	
512	West Tolgus, c, Redruth	62 0 0	—	
4096	W. Wh. Tremayne, St. Erth	0 14 0	—	
741	Wheal Basset and Grylls, t.	7 18 6	7	6½ 7½
5368	Wheal Crebor, c, Tavistock	2 7 6	⅝	½ ⅝
4000	Wh. Emma, c, Buckfastleigh	3 19 0	—	
1560	Wheal Falmouth & Sperries	9 1 0	—	
3700	Wheal Ida, s-l, St. Ive	1 8 0	—	
1024	Wh. Kitty, t, Uny Lelant†	3 10 6	—	
896	Wh. Margaret, t, Uny Le.‡	13 17 6	9	9 10
728	Wheal Margery, St. Ives, t, c	27 4 0	—	
6000	Wheal Mary Florence, c*	2 10 0	—	
1000	Wh. Mary Hutchins, Plymp.	2 12 6	—	
2000	Wheal Rose, c, Scorrier	1 0 0	—	
4663	Wheal Sparnon, c	3 17 0	—	
1920	Wh. Trannack, c, Sithney	1 13 3	—	
1200	Wheal Trevenna, t, c*	10 0 0	—	

IRON AND COAL COMPANIES.

100	Bolckow, Vaughan, and Co.*	30 0 0	11½ — pm.
100	Brown, John, and Co.*	70 0 0	23 22 dis.
100	Charles Cammell and Co.*	80 0 0	30 28 dis.
10	Consett Iron Company*	7 10 0	1 1¼ pm.
32	Ebbw Vale Iron Co.*	27 10 0	11¼ 10¾ dis.
15	Hopkins, Gilkes, and Co.*	10 0 0	2 1 dis.
12½	Mersey Steel and Iron Co.*	11 10 0	8¾ 8⅝ dis.
10	Midland Iron Company*	5 0 0	7 7¼ pm.
35	Palmer's Shpbldg. & Iron Co.*	25 0 0	6 5⅞ dis.
100	Parkgate Iron Company*	57 10 0	32 28 dis.
20	Patent Shaft & Axletree Co.*	10 0 0	5 5¼ pm.
50	Rhymney Iron Company	50 0 0	18 20 dis.
15	Ditto, New	15 0 0	5¼ 6½ dis.
100	Sheepbridge Coal & Iron Co.*	50 0 0	22½ 20½ dis.
50	Shotts Iron Company	50 0 0	19 — dis.
100	Staveley Coal and Iron Co.*	60 0 0	32 32¼ pm.
100	Thames Iron Company*	100 0 0	70 — dis.

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; sl, silver-lead; t, tin; z, zinc.

. Companies marked thus * have been incorporated with Limited Liability; those marked † have been admitted on the Stock Exchange, those marked thus ‡ have paid Dividends.

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